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Continued inside back cover

Further additions to the known avifauna of the Impenetrable (Bwindi) Forest, southwestern Uganda (1989–1991)

Thomas M. Butynski and Jan Kalina

The Impenetrable (Bwindi) Forest National Park (321 km^2) in the extreme southwest of Uganda ($0^\circ 53' - 1^\circ 08'S$, $29^\circ 35' - 29^\circ 50'E$) holds one of the richest forest avifaunas in Africa (Keith *et al.* 1969, Friedmann & Williams 1970), including a particularly important montane avifauna (Keith 1980, Prigogine 1985, Dowsett-Lemaire & Dowsett 1990). The Impenetrable is known to hold 69 of the 77 montane forest bird species of the Albertine Rift Afromontane Region (Keith *et al.* 1969) and 21 of the Region's 36 endemics (Prigogine 1985a). This is apparently because of its considerable altitudinal range (1160–2600 m) and probable role as a Pleistocene refuge (Keith 1980, Hamilton 1981).

The most significant accounts of the bird species which occur in the Impenetrable Forest are those of Keith *et al.* (1969), Friedmann & Williams (1970), Keith (1980), Butynski & Kalina (1989) and Kalina & Butynski (1991). Butynski (1984) provides a detailed description of the forest and reviews the scientific and conservation literature concerned.

In early 1989 we presented a list of additions to the forest's avifauna (Butynski & Kalina 1989). Since then our work has continued on a variety of conservation and research activities in and around the forest and we have made further observations on the avifauna. In the present paper we provide another list of additions. While some mist netting was undertaken, all but one of the additions are based on sightings or calls. Most of the species added are relatively easy to identify with certainty even when not in the hand.

Here we add 28 species to the list of birds known to occur within the borders of the Impenetrable (Bwindi) Forest National Park (Kalina & Butynski 1991). Of these, six are forest species, 16 are forest edge or non-forest species, and six are Palaearctic migrants. This brings the total number of species on the list to 336. Of these, 180 are "forest species" (which usually, or always, use forest and forest-related habitats), 95 are "forest/non-forest species" (which use both forest and non-forest habitats), 40 are "non-forest species", and 21 are Palaearctic migrants.

The species' number, sequence and nomenclature used follow Britton (1980). An asterisk before the species number denotes that we consider the bird to be a forest species in this locality.

Questionable species for the Impenetrable Forest

We suspect that two species recorded as occurring in the forest were incorrectly identified. Four other bird species need further confirmation. In addition, we have noticed that two species on the list were collected outside the borders of the forest and have yet to be sighted within its boundaries. It would not be surprising if these eight species were eventually shown to occur. Nonetheless, we recommend that they be removed from the forest's bird list until their presence can be confirmed. Keith *et al.* (1969) provides a similar "hypothetical" listing of five species whose presence still requires confirmation.

72 *Anas undulata* Yellow-billed Duck This species may have been seen by A. Katende, Mubwindi Swamp, 2130 m, August 1990. Park rangers say that a duck with a "yellow bill" can be seen at Two Pond Swamp, 1850 m. This species is frequently seen on the crater lakes of the Virunga Volcanoes, 30 km to the south (Wilson 1982).

216 *Podica senegalensis* African Finfoot R. Drewes briefly saw a bird resembling this species fly up from Two Pond Swamp, 1850 m, 4 November 1990. If confirmed, this would extend the East African altitudinal limit for this species upward by 50 m and be the first record for southwest Uganda (Britton 1980, Short *et al.* 1990).

***645 *Dicrurus ludwigii* Square-tailed Drongo** We are familiar with this species from our work in Kibale Forest where it is common. Given the high altitude at which it was seen (2200 m), and the fact that we have not seen this conspicuous species again in the Impenetrable Forest, we are now reasonably certain that we misidentified an immature *Melaenornis ardesiaca* Yellow-eyed Flycatcher. The immature of this flycatcher, unlike the adult, has a reddish-brown eye similar to that of *D. ludwigii*.

***673 *Phyllanthus atripennis* Capuchin Babbler** Britton (1980) and Short *et al.* (1990) mention a sight record for this species at 1700 m. This needs confirmation. The only place in East Africa where it is known to occur is Bwamba Forest.

681 *Turdooides jardineii* Arrow-marked Babbler Friedmann & Williams (1970) note that this bird was collected outside the forest at Ruhizha.

967 *Terpsiphone rufiventer* Red-bellied Paradise Flycatcher One bird, possibly of this species, seen by W. Moeller, Buhoma, 1500 m, 5 November 1990. Given that this is a widespread species in the forests of western Uganda, it should occur in the Impenetrable.

981 *Anthus novaeseelandiae* Richard's Pipit Friedmann & Williams (1970) note that this bird was collected outside the forest at Ruhizha.

***1105 *Nectarinia ludovicensis* Montane Double-collared Sunbird** Britton (1980) was the first to indicate that this species had been seen in the forest, but he did not give the source for his information. Bennun (1986) states that, above 2100 m, he observed *N. ludovicensis* much more often than *N. preussi*. Based upon collected and sighted birds, Keith *et al.* (1969) found *N. preussi* from 1200–2460 m and never recorded *N. ludovicensis*. Likewise, we, A. D. Forbes-Watson, R. Wilson, J. S. Ash, J. Miskell, R. J. Dowsett, F. Dowsett-Lemaire, I. Francis, M. A. C. Coverdale, and several other people familiar with sunbirds failed either to capture or see *N. ludovicensis* in the Impenetrable. The species is common in the Virunga Volcanoes 30 km to the south (Britton 1980, Wilson 1982, Short *et al.* 1990, Butynski & Kalina, unpubl. data). It now appears that the only place in East Africa where this species occurs is the Virunga Volcanoes (Mgahinga Gorilla National Park).

Additions to the Impenetrable Forest bird list

84 *Gypohierax angolensis* Palm-nut Vulture One seen by TMB, Zaire-Uganda border, 1700 m, 23 April 1989. Solitary birds seen several times in the area since.

102 *Accipiter badius* Shikra One seen by P. Van Daele, G. Debonnet and P. Vercommen below Ruhizha, 2200 m, 21 September 1990. One seen by A. D. Forbes-Watson and TMB, Ruhizha, 2300 m, 16 February 1991.

107 *Accipiter minullus* Little Sparrowhawk One seen by P. Van Daele, G. Debonnet and P. Vercommen below Ruhizha, 2200 m, 21 September 1990. One seen by I. Francis, TMB and N. Penford at Buoma, 1500 m, 3 November 1991.

109 *Accipiter ovampensis* Ovampo Sparrowhawk One seen by I. Francis, TMB and N. Penford on forest edge at Buhoma, 1500 m, 3 November 1991. This may be the first Uganda record west of Mengo (Britton 1980).

118 *Aquila wahlbergi* Wahlberg's Eagle One seen by TMB, D. E. Pomeroy and L. A. Bennun at Ruhizha, 2300 m, 27 August 1991 and one seen by I. Francis and TMB near Rwamunyonyi Hill, 2500 m, 26 October 1991. Recorded for the Virunga Volcanoes, 30 km to the south, by Wilson (1982).

127 *Hieraetus spilogaster* African Hawk Eagle Two seen by J. E. Miskell, Ruhinda Ridge, 2300 m, 29 May 1989 and a probable sighting of one adult at the same location by the authors.

128 *Hieraetus pennatus* Booted Eagle One seen by A. D. Forbes-Watson, Ruhizha, 2400 m, 17 February 1991, another seen by the same observer and TMB, Ruhinda Ridge, 2500 m, 19 February 1991. They also saw a flock of about 30 probable *H. pennatus* flying high over Mubwindi Swamp, 2200 m, 25 February 1991.

148 *Falco biarmicus* Lanner Falcon One seen by A. D. Forbes-Watson and TMB, Ruhinda Ridge, 2450 m, 19 February 1991. It caught a large flying insect. This species is recorded for the Virunga Volcanoes 30 km to the south (Wilson 1982).

160 *Falco subbuteo* Hobby Butynski & Kalina (1989) report this falcon just outside the forest. One was seen by H. Wirth within the forest southeast of Kanyashogye, 2000 m, 27 February 1990 and another by I. Francis, TMB and N. Penford near Rwamunyonyi Hill, 2500 m, 26 October 1991. Wilson (1982) notes that this Palaearctic migrant can be seen in the Virunga Volcanoes in small numbers on passage during February to March and October to November. Vande Weghe (1978) suggests that the area between Lake Victoria and the Albertine Rift is the most important transit area for the species.

214 *Sarothrura rufa* Red-chested Pygmy Crake One mist-netted by JK, J. S. Ash, J. E. Miskell and TMB in Mubwindi Swamp, 2150 m, 14 February 1990 (Ash *et al.* 1991). Britton (1980) and Short *et al.* (1990) indicate that this is a rare species in Uganda with but three previous records, all from Mengo and Busoga in the eastern part of the country, about 400 km NNE from the Impenetrable.

258 *Tringa ochropus* Green Sandpiper One seen by A. D. Forbes-Watson and TMB, Mubwindi Swamp, 2150 m, 22 February 1991 and one seen by I. Francis, Buhoma, 1500 m, 5 November 1991. A. D. Forbes-Watson also saw one about a kilometre outside the forest at Ruhizha on 17 February 1991. Wilson (1982) records the species in the Virunga Volcanoes.

444 *Apus apus* Eurasian Swift One seen by I. Francis on Rushuura Hill, 1900 m, 8 November 1991. Wilson (1982) records the species on passage from the Virunga Volcanoes in March and September.

449 *Apus melba* Alpine Swift One seen by JK, Buhoma, 1550 m, 17 March 1990 and two by TMB, Two Pond Swamp, 1850 m, 12 September 1991. Recorded for the Virunga Volcanoes by Wilson (1982).

479 *Merops albicollis* White-throated Bee-eater Several seen by A. D. Forbes-Watson and TMB north of Ishasha Gorge, 1350 m, 26 February 1991.

491 *Merops pusillus* Little Bee-eater Two seen by TMB north of Ishasha Gorge, 1300 m, 26 February 1991.

504 *Phoeniculus castaneiceps* Forest Wood Hoopoe Britton (1980) notes this species for the forest but provides no record. A. D. Forbes-Watson saw two at Buhoma, 1500 m, 25 February 1991.

***529 *Buccanodon duchaillui* Yellow-spotted Barbet** One heard by A. D. Forbes-Watson and TMB, Buhoma, 1550 m, 25 February 1991 and one heard there by I. Francis and TMB on 2 November 1991. This species was not on our bird list but we notice that Britton (1980) mentions its occurrence in the Impenetrable, source of the record unknown. It has been collected in the Kalinzu Forest about 100 km to the NNE (Friedmann & Williams 1970).

634 *Hirundo rustica* Eurasian Swallow Several seen by A. D. Forbes-Watson and TMB north of Ishasha Gorge, 1350 m, 26 February 1991. Wilson (1982) found it present in the Virunga Volcanoes from August to May and Friedmann & Williams (1970) collected it in the Kalinzu Forest.

635 *Hirundo semirufa* Rufous-chested Swallow Several seen by A. D. Forbes-Watson and TMB, Ruhinda Ridge, 2300 m, 19 February 1991. This sighting is 600 m higher than noted by Britton (1980).

637 *Hirundo smithii* Wire-tailed Swallow Two seen by TMB, Ruhizha, 2350 m, 11 July 1991.

651 *Oriolus oriolus* Golden Oriole One seen by TMB, JK and I. Francis, Ruhizha, 2350 m, 10 November 1991.

***699 *Andropadus gracilis* Little Grey Greenbul** One seen by A. D. Forbes-Watson and TMB, Buhoma, 1550 m, 25 February 1991 (the first observer knows the bird well

from Kakamega Forest and West Africa). It is common in the Kalinzu and Maramagambo Forests (Friedmann & Williams 1970, Britton 1980, Short *et al.* 1990) about 50 km NNE and widespread in western Ugandan forests. Its occurrence in the Impenetrable is not surprising.

709 *Chlorocichla flavigollis* Yellow-throated Leaflove One seen by JK on forest edge at Ngoto Swamp, 1500 m, 8 November 1990 and another seen by A. D. Forbes-Watson and TMB, Buhoma, 1550 m, 25 February 1991.

***800 *Turdus (Zoothera) oberlaenderi* Forest Ground Thrush** T. Gullick recently pointed out to us that Prigogine (1985b) described a specimen of this species collected at 1620 m in the Impenetrable and housed at the Los Angeles County Museum. It had been collected 200 m higher than previously reported (Collar & Stuart 1985). This Red Data Book species is known from a few places in eastern Zaïre, Bwamba Forest in Uganda, and Itombwe Mountains, Zaïre. Its occurrence in the Impenetrable is, therefore, not surprising. The Prigogine reference seems to have been overlooked. Collar & Stuart (1985) and Short *et al.* (1980) make no mention of the bird's occurrence in the Impenetrable. Prigogine himself (1985a) does not list the species so perhaps his list was compiled before he saw the specimen.

***971 *Trochocercus cyanomelas* Crested Flycatcher** One adult and a large fledgling seen by TMB, Mubare Hill, 1700 m, 24 April 1989. This conspicuous bird must be rare in the forest as it has only been encountered once.

***1042 *Prionops caniceps* Red-billed Helmet Shrike** A. D. Forbes-Watson and TMB saw a flock of about seven flying up Ishasha Gorge, 1200 m, 26 February 1991. Britton (1980) and Short *et al.* (1990) report this species only from Bwamba and Bugoma Forests of western Uganda (700–1100 m), 210 km to the north. It has not been reported in Rwanda (Mackworth-Praed & Grant 1973, Wilson 1982, Dowsett-Lemaire 1990) so the Ishasha Gorge birds represent the southwestern extremity of the species' distribution and the altitude of the site is also slightly higher than previously recorded.

1134 *Amblyospiza albifrons* Grosbeak Weaver One seen by JK, Ngoto Swamp, 1280 m, 9 November 1990.

1293 *Serinus sulphuratus* Brimstone Canary One seen by TMB, Ruhizha, 2300 m, 9 November 1986. Seen up to 2400 m in the Virunga Volcanoes 30 km to the south (Wilson 1982).

Bird species seen close to the Impenetrable Forest

Eight species were observed just outside the border of the forest. While they have not been added to the list, they may eventually be found within the forest boundaries.

89 *Torgos tracheliotus* Lappet-faced Vulture One seen by H. Wirth 1 km from the forest at Ruhizha, 2200 m, 28 February 1991.

252 *Actitis hypoleucos* Common Sandpiper One seen by A. D. Forbes-Watson 1 km from the forest at Ruhizha, 2200 m, 17 February 1991.

575 *Jynx ruficollis* Red-throated Wryneck One seen by TMB 1 km from the forest at Ruhizha, 2100 m, 4 July 1989. Also seen near the forest at Buhoma, 1700 m, 1 July 1984 (Butynski & Kalina 1989).

612 *Mirafra africana* Rufous-naped Lark Adult found on nest by JK and TMB 1 km from the forest at Ruhizha, 2350 m, 23 February 1988.

684 *Turdoides plebejus* Brown Babbler One seen by I. Francis, TMB and N. Penford 1 km from the forest near Kanyashogye, 1700 m, 1 November 1991. This is 200 m higher than noted by Britton (1980).

751 *Cossypha heuglini* White-browed Robin Chat One seen by A. D. Forbes-Watson 1 km from the forest at Ruhizha, 2200 m, 17 February 1991.

982 *Anthus similis* Long-billed Pipit One seen by TMB and I. Francis on a gravel road, 1 km from the forest at Kanyashogye, 2000 m, 9 July 1991.

984 *Anthus trivialis* Tree Pipit One seen by A. D. Forbes-Watson and TMB 20 m from the forest on Ruhinda Ridge, 2400 m, 19 February 1991.

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Vikindu Forest Reserve, Tanzania: a first ornithological survey including a record of the Sokoke Pipit *Anthus sokokensis*

C. O. F. Mlingwa

Detailed accounts of birds in the Dar es Salaam area, Tanzania have been provided by Harvey & Howell (1987). With regard to the forest bird community, more references were made from the Pugu Forest Reserve, which until now remains the most studied locality of all the coastal forests in Tanzania (e.g Fuggles-Couchman 1939, Stuart & van der Willigen 1979, Howell 1981, Stuart 1981, 1983, Collar & Stuart 1985, 1988).

Recently, the avifauna at two forest localities, Pande and Kazimzumbwe, both in the Dar es Salaam area, has been investigated (Burgess *et al.* 1991, Mlingwa *et al.* 1993) as part of the ICBP coastal forest research programme. In continuation of this programme, which aims at assessing the conservation significance of each of the remnant coastal forests, a survey was made in 1989 with a view to collect data which can help in preliminary assessment of a bird assemblage at Vikindu. This paper presents results of work carried out in this respect in October and November 1989.

Methods

Study area

Vikindu Forest Reserve ($6^{\circ}59'S$, $39^{\circ}17'E$) covers 10 km^2 of low-lying flat land, about 25 m above sea level, and 17 km south of Dar es Salaam city. Most of the natural forest area was extensively logged in the past and replanted with exotic species such as *Eucalyptus* sp., *Cassia siamea* and *Pinus* sp., in order to protect the clay and sandy soil from erosion (Mbawana, pers. comm.). However, illegal tree cutting from the remaining natural vegetation for fuelwood and charcoal-making continues in the reserve.

Although botanical collections have been made in this forest over the years, the flora has never been described. At present, anything resembling typical coastal forest vegetation in Vikindu Forest Reserve remains only in the form of tiny patches along stream valleys. This vegetation include *Warburgia elongata*, possibly endemic to eastern African coastal forests, and the rare *Triestamma schliebenii* (Burgess *et al.* 1992).

Survey methods

The study was conducted from 18–23 October and 14–20 November 1989. Survey methods involved a combination of audio-visual observations and mist-netting. The latter enabled the recording of more secretive forest birds, although many species are of course unlikely to be trapped because of their aerial or skulking habits or because of their remarkable eyesight (Tyler 1979).

Netting was made in a tiny patch of forest (2 ha) which had a very sparse shrub layer and almost no undergrowth. The tree canopy cover was about 60–90 per cent, and the upper canopy height was approximately 15 m. *Afzelia quanzensis* and *Baphia* spp. were the dominant trees growing on clay and sandy soil in the area.

Ten nets ranging from 5 m to 15 m long were employed, totalling 125 m in length.

Nets were placed with the bottom shelf close to the ground and the top shelf at about 3 m. Sampling was carried out from 06:00–19:00 hours, with net checks every 30 min. Nets were always furled at the onset of rain in order to avoid casualties. Mistnets were moved every two days if catching was poor.

Observations were carried out in a variety of habitats, from typical forest vegetation to formerly cultivated areas within the reserve boundaries.

Results

The species recorded during the study period are listed in Table 1. Order and nomenclature follow Britton (1980). A total of 53 individuals of 14 species were netted in Vikindu Forest in 16 800 metre-net hours of effort. Forty-one species of birds recorded were regarded as partly or wholly dependent on forest for their survival, plus a further 20 non-forest ones.

Table 1. *Species observed and netted in Vikindu Forest Reserve*

Abbreviations used to indicate status of species are as follows: column heading: O: Observation; a subjective index of abundance (a–d) based on observation is given:
a = common, b = frequent, c = scarce, d = seen or heard only once or twice
regardless of group size.

N: Mist-netting; the total number of individuals of that species caught is noted.

F: Species known to be partly or wholly dependent on the forest habitat for its existence is noted by "x".

Family and species	O	N	F
Accipitridae: birds of prey			
<i>Gypohierax angolensis</i> Palm-nut Vulture	d	—	—
<i>Terathopius ecaudatus</i> Bateleur	d	—	—
<i>Accipiter tachiro</i> African Goshawk	c	—	x
<i>Stephanoaetus coronatus</i> Crowned Eagle	c	—	x
Phasianidae: francolins			
<i>Francolinus sephaena</i> Crested Francolin	c	—	—
Numididae: guineafowls			
<i>Guttera pucherani</i> Kenya Crested Guineafowl	c	—	x
Columbidae: pigeons, doves			
<i>Streptopelia semitorquata</i> Red-eyed Dove	c	—	—
<i>Turtur chalcospilos</i> Emerald-spotted Wood Dove	c	—	—
<i>Turtur tympanistria</i> Tambourine Dove	c	—	x
<i>Treron australis</i> Green Pigeon	c	—	x
Psittacidae: parrots			
<i>Poicephalus cryptoxanthus</i> Brown-headed Parrot	c	—	x
Musophagidae: turacos			
<i>Tauraco livingstonii</i> Livingstone's Turaco	b	—	x
Cuculidae: cuckoos			
<i>Ceuthmochares aereus</i> Yellowbill	b	—	x

continued

Family and species	O	N	F
<i>Centropus superciliosus</i> White-browed Coucal	c	-	x
Strigidae: owls			
<i>Ciccaba woodfordii</i> African Wood Owl	b	-	x
Caprimulgidae: nightjars			
<i>Caprimulgus pectoralis</i> Fiery-necked Nightjar	c	-	x
Apodidae: swifts			
<i>Apus affinis</i> Little Swift	b	-	-
<i>Cypsiurus parvus</i> Palm Swift	b	-	-
<i>Neafrapus boehmi</i> Böhm's Spinetail	c	-	-
Coliidae: mousebirds			
<i>Colius striatus</i> Speckled Mousebird	c	-	-
Trogonidae: trogons			
<i>Apaloderma narina</i> Narina's Trogan	c	1	x
Alcedinidae: kingfishers			
<i>Halcyon albiventris</i> Brown-hooded Kingfisher	c	-	-
<i>Ispidina picta</i> Pygmy Kingfisher	c	1	x
Meropidae: bee-eaters			
<i>Merops albicollis</i> White-throated Bee-eater	d	-	-
Phoeniculidae: wood hoopoes			
<i>Phoeniculus purpureus</i> Green Wood Hoopoe	c	-	x
Bucerotidae: hornbills			
<i>Tockus alboterminatus</i> Crowned Hornbill	c	-	x
Capitonidae: barbets			
<i>Pogoniulus bilineatus</i> Yellow-rumped Tinkerbird	c	-	x
<i>Pogoniulus pusillus</i> Red-fronted Tinkerbird	c	-	-
Eurylaimidae: broadbills			
<i>Smithornis capensis</i> African Broadbill	c	1	x
Pittidae: pittas			
<i>Pitta angolensis</i> African Pitta	d	-	x
Dicruridae: drongos			
<i>Dicrurus adsimilis</i> Drongo	c	-	-
<i>Dicrurus ludwigii</i> Square-tailed Drongo	c	-	x
Pycnonotidae: bulbuls			
<i>Andropadus importunus</i> Zanzibar Sombre Greenbul	c	-	-
<i>Andropadus virens</i> Little Greenbul	a	4	x
<i>Chlorocichla flaviventris</i> Yellow-bellied Greenbul	a	-	x
<i>Nicator chloris</i> Nicator	c	1	x
<i>Phyllastrephus debilis</i> Tiny Greenbul	c	2	x
<i>Phyllastrephus fischeri</i> Fischer's Greenbul	d	-	x
<i>Phyllastrephus terrestris</i> Brownbul	d	-	-
<i>Pycnonotus barbatus</i> Common Bulbul	c	-	-
Turdidae: thrushes, chats			
<i>Cercotrichas leucophrys</i> White-browed Scrub Robin	c	-	-
<i>Cercotrichas quadrivirgata</i> Eastern Bearded Scrub Robin	b	5	x
<i>Cichladusa guttata</i> Spotted Morning Thrush	c	-	-
<i>Cossypha natalensis</i> Red-capped Robin Chat	a	15	x

continued

Family and species	O	N	F
<i>Neocossyphus rufus</i> Red-tailed Ant Thrush	c	2	x
Sylviidae: warblers			
<i>Camaroptera brachyura</i> Grey-backed Camaroptera	b	2	x
<i>Sphenoeacus mentalis</i> Moustached Warbler	c	-	-
Muscicapidae: flycatchers			
<i>Trochocercus cyanomelas</i> Crested Flycatcher	a	6	x
Motacillidae: pipits			
<i>Anthus sokokensis</i> Sokoke Pipit	c	-	x
Malacconotidae: bush shrikes			
<i>Dryoscopus cubla</i> Black-backed Puffback	b	-	x
<i>Laniarius ferrugineus</i> Tropical Boubou	b	-	x
<i>Malacconotus quadricolor</i> Four-coloured Bush Shrike	c	-	x
Prionopidae: helmet shrikes			
<i>Prionops scopifrons</i> Chestnut-fronted Helmet Shrike	c	-	x
Sturnidae: starlings			
<i>Lamprotornis corruscus</i> Black-breasted Glossy Starling	b	-	x
Nectariniidae: sunbirds			
<i>Anthreptes collaris</i> Collared Sunbird	c	1	x
<i>Nectarinia olivacea</i> Olive Sunbird	a	11	x
Ploceidae: weavers			
<i>Ploceus bicolor</i> Dark-backed Weaver	c	-	x
Estrildidae: waxbills			
<i>Hypargos niveoguttatus</i> Peters' Twinspot	c	-	x
<i>Mandingoa nitidula</i> Green-backed Twinspot	c	1	x
<i>Pyrenestes minor</i> Lesser Seed-cracker	c	-	x
<i>Uraeginthus angolensis</i> Cordon-bleu	d	-	-

Notable records included the vulnerable Sokoke Pipit and the African Pitta, which is a common Afrotropical migrant on the East African coast.

Discussion

The forest bird assemblage at Vikindu is depauperate compared to other remnant forests, Pande and Pugu and Kazimzumbwe, in the Dar es Salaam area (see Harvey & Howell 1987, Burgess *et al.* 1991, Mlingwa *et al.* 1992). The comparatively severe damage made in the natural forest vegetation at Vikindu is the causative factor for a poor species diversity of the avifauna. The effect of habitat damage has not only led to local extinction of a number of species which would be expected to occur in Vikindu forest, but also appears to have affected abundance of the remaining bird species. Compared to other recently studied forest sites on the coast of Tanzania for example (see Bagger *et al.* 1989, Faldborg *et al.* 1991, Holsten *et al.* 1991, Mlingwa *et al.* 1992), mistnet samples at Vikindu were the smallest, suggesting that birds occur in low densities. Furthermore, within the trapping area, there was not much activity in the upper vegetation strata to show that birds were abundant above the netting zone. Even

with the general assessment of abundance made in areas of the reserve where a survey was carried out, many species of birds recorded were scarce or rare (Table 1).

Despite the absence of an entirely natural vegetation in the reserve, due to illegal tree-cutting and introduction of exotics, the remaining avifauna is still representative of eastern African lowland forests. The forest birdlife at Vikindu includes the Sokoke Pipit (Mlingwa 1991) which is endemic on the East African coast, as well as a member among threatened birds of Africa (Collar & Stuart 1985, 1988). Vikindu thus becomes the second southernmost point in the range of *Anthus sokokensis* which was previously regarded as restricted to Pugu Forest (Howell 1981, Collar & Stuart 1985, 1988).

Ornithologically, therefore, this initial survey has shown a considerable conservation importance of the Vikindu Forest Reserve. In addition, a number of forest patches which were not investigated during the study are still present in the reserve, though their total coverage remains unknown. Further survey in these patches might discover some additional species such as the Green Tinkerbird *Pogoniulus simplex*, Pale-breasted Illadopsis *Trichastoma rufipennis puguensis*, East Coast Akalat *Sheppardia gunningi*, Little Yellow Flycatcher *Erythrocercus holochlorus* and the Forest Batis *Batis mixta*. These birds have not been recorded in the present study, but they occur in the neighbouring forests at Kazimzumbwe and Pugu.

This study and those recently made at Pande and Kazimzumbwe (see Burgess *et al.* 1991, Mlingwa *et al.* 1992) have contributed to a better understanding of the forest bird community in the remaining forest patches in the Dar es Salaam area. This community is considerably rich by East African standards; however, its survival will definitely depend on the protection of the remaining natural vegetation, albeit disturbed, from further clearance.

Though the biodiversity conservation needs of remaining patches of forest in the Dar es Salaam area have been emphasized by Howell (1981) and Harvey & Howell (1987), there seems to be little effort to control the harmful human activities taking place at all four localities—Pande, Pugu, Kazimzumbwe and Vikindu. It is therefore suggested that this problem would be controlled only if alternative sources of fuelwood and construction material for local human populations can be found. Initiating tree-planting schemes in villages surrounding the reserves, preferably along agroforestry lines, would be a suitable choice since the same land may offer both agricultural crops and forestry products.

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Decrease of the Black Kite *Milvus migrans* and other commensal birds in the Comoros

Michel Louette

Man colonized the Comoros some 1000 years ago. His activities changed the vegetation in the lowlands drastically, permitting subsequent colonization by several culture-following bird species from Madagascar and Africa. The inter-island distances (minimum 45 km) prevent frequent exchange of birds; since the composition of the avifaunas are quite similar, however, this must have occurred at times.

Man also introduced some other birds deliberately. The dates of these introductions are not all well known though Benson (1960) and Louette (1988) give some estimates. Several introduced birds had already died out around the turn of the century, including Common Waxbill *Estrilda astrild*, Red Avadavat *Amandava amandava*, Java Sparrow *Padda oryzivora* and Pin-tailed Whydah *Vidua macroura*. The House Sparrow *Passer domesticus* is still limited to the urbanized parts of Grand Comoro and Mayotte, where it has progressed slowly over the years since Benson's 1958 visit. In Moheli it also exists in native villages, possibly not permanently; none were seen at Miringoni in 1975 (Cheke & Diamond 1986), 1989 or 1992, whereas it was quite common there in 1983. On Anjouan its introduction failed. The Grey-headed Lovebird *Agapornis cana* is a regular but not uncommon species in the lowlands of all four islands, perhaps commonest in Mayotte. Its status does not seem to have changed since 1958. The fate of the Helmeted Guineafowl *Numida meleagris* is related to hunting. It persists only in a few scattered patches on three islands and is absent from Moheli.

Two introduced species were highly successful. The Common Myna *Acridotheres tristis* was introduced about 1903 (Benson 1960) and is now widespread and very common all over the archipelago, except in pristine forest on the summit of Moheli and above 1000 m in general on Grand Comoro. The Madagascar Fody *Foudia madagascariensis*, which possibly arrived unaided by man (first mentioned by Sclater 1864), is now present over large areas of the archipelago. It is less abundant at higher altitudes and, oddly enough, is absent in the interior of Mayotte.

The first author to mention a commensal self-introduced bird was Peter Mundy who saw the Pied Crow *Corvus albus* on Moheli in 1628 (Temple 1914); Schlegel & Pollen (1868) and Nicoll (1906) mention that it was very common on Mayotte. Benson (1960) described it as common throughout the archipelago. It is surprising that this highly successful species has recently been declining. On Mayotte I found it regular and quite common in October 1983 and April 1985; in October 1992 only five birds were seen during 30 h of bird-counts in forest and a similar number of birds during 15 h in degraded vegetation. It was also uncommon on Anjouan one week later, where R. Miallier was also surprised by its rarity. It diminished significantly on Grand Comoro between 1985 and 1989 (Stevens *et al.* 1992). In the absence of counts, I cannot confirm my impression that the same tendency also prevails for Cattle Egret *Bubulcus ibis* and possibly for Bronze Mannikin *Lonchura cucullata* (not really a commensal bird on the Comoros). Both species are more common on Anjouan and Moheli where agricultural activity is greater than on the other two islands.

The Black Kite decrease

The most spectacular and rather well-documented case concerns the Black Kite. The local race is *parasitus*, normally a bird well adapted as a commensal (cf. Manyanza 1984). In August–November 1958, Benson (1960) found it “a familiar sight in the neighbourhood of human habitations throughout the archipelago”. Forbes-Watson (1969) considered it common on all four islands in October 1965, as did Salvan (1972) on Grand Comoro and Mayotte in December 1969 and October 1970. D. A. Turner and A. D. Forbes-Watson again saw it on all four islands in June–July 1974. For Grand Comoro, this consisted of the observation of a “few individuals only” on 15–16 June. M. Toyb told me in 1989 that on Grand Comoro “20 years ago, during my childhood, it was common around villages, but disappeared later, due to a change in slaughtering practises”. By July–August 1981, the bird had indeed disappeared from Grand Comoro, as it was not seen by M. Herremans and me then, nor during five subsequent visits (September–December 1983: ML, MH and L. Janssens; April 1985: ML and MH; September–October 1985: J. Stevens, L. Bijnens and LJ; November–December 1989: ML, MH, JS, D. Meirte and D. Vangeluwe; September–October 1992: DM). There are no records by any other observer for Grand Comoro from 1991 onwards.

On Mayotte, from April to July 1864, it existed “en quantité dans le port de Zauzi” (Schlegel & Pollen 1868). The species was still very numerous there in February 1906 (Nicoll 1909). In 1983, during a visit of ten days in October–November, I explored the whole islands of Grande Terre and Pamandzi and did not see the species at all. In April 1985, however, small numbers were seen: up to four together daily on Grande Terre and one at Pamandzi. More recently, between May and October 1992 only two (the same bird?) were seen by F. Néri at Mamoudzou town and Bouzi islet. M. Le Corre saw one only during a fortnight’s stay, in July 1992 at Bandrélé and I saw none during two weeks in October of the same year.

For Anjouan, Sclater (1864) mentions Kirk’s observation that the species was “in great abundance” at Pomoni in August, while Newton (1877) found it “very common”. During a stay of eight days in October 1983, M. Herremans and L. Janssens saw a single bird at Ouani airport and two more near Adda-Doueni, two near Pomoni and twice a bird near Lingoni. One bird was seen at the airport during a stopover on 25 April 1985 by M. Herremans and me. In the period 1985–1988, J. Veerkamp regularly saw one bird at Ouani airport and more rarely one at Mutsamudu. Safford & Evans (1992) saw one at Mutsamudu in April 1990. R. Miallier saw none in 1992 during his stay at Pomoni in the period March–July nor did I during five days in November 1992.

On Moheli, where Benson (1960) saw groups of 17, 13 and ten on the single day of 18 September 1958, Cheke & Diamond (1986) saw “rather few” in February 1975. It was quite regular everywhere on the island in November 1983. Up to four birds together were seen at Fomboni, and it occurred in fair numbers at the south coast (Miringoni and Moihani) and inland up to the ridge. It was also seen on the islets Canzioni and Magnougny. In December 1989 a single bird was seen twice at the ridge during a two-day stay and one more at sea level during a two-day stay there. In November 1992, during a four-day stay, D. Meirte did not see the species.

In conclusion, the Black Kite had already disappeared from one island by 1981 and became very rare on the three others during the 1980s, bringing it also to the verge of extinction there by 1992.

Possible causes of the decline

The species' former status in the Comoros is uncertain; was the Black Kite resident (and breeding) or migratory?

One hypothesis is that the bird was resident, and unable to reverse a population decline. Up to the 1970s it was apparently present year-round on the Comoros, and the decline appears to have been steady. However, no sign of breeding has ever been mentioned on the Comoros or on nearby Aldabra, whence there are single observations and specimens in the months August–January, and one from March (Benson & Penny 1971). It is also a stray at the Glorieuses (Benson *et al.* 1975), indicating its ability to venture into the Moçambique Channel.

A second possibility is that the bird was a non-breeding migrant, some external factor having changed the numbers involved. The fact that it disappeared completely from Grand Comoro years ago, while it was still present but decreasing on the other islands, may favour this hypothesis. Grand Comoro is the island farthest away from Madagascar, possibly not reached any longer by the ever-decreasing number of birds travelling from there. Also, if the species was absent from Mayotte in 1983 and present again in 1985, these latter birds must have been newly arrived migrants.

Indeed, the status on the Comoros is conceivably related to its population in Madagascar and the reason for decline may be due to a decrease there, with subsequent absence of expansionary migration to the Comoro archipelago. Langrand (1990) mentions the Black Kite as a common gregarious species in Madagascar, proven to breed "in loose-knit colonies". He gives September as the breeding period and both Rand (1936) and Meyburg & Langrand (1985) mention nests in October. However, they do not describe any migrations, other than indicating the usual aggregations in flocks. Since most of our visits to the Comoros have been during this Madagascar breeding period, it is not impossible that migrants reached the archipelago during the off-season. However, some observers were also present then, and previous observers also saw the bird during September–October making this hypothesis unlikely, although Benson (1960) thought the large groups he saw on Moheli were migrants.

Alternately, the Comoro birds may have been of African descent; no morphological difference is known between African, Madagascar and Comoro specimens. The breeding period is the same as in Madagascar for the part of the continent closest to the Comoros (Benson & Benson 1977, Britton 1980). The species is a dry season breeder, leaving the region during the rains; it is not known to have decreased in eastern Africa recently (to the contrary: Lewis & Pomeroy 1989) or changed its migration patterns. There is no example known of a migrant bird breeding in Africa and reaching the Comoros, whereas there are several that make a post-breeding migration there from Madagascar. On the opposite side of Africa, de Naurois (1983) noted that the Black Kite is a non-breeding dry-season visitor to the island of Fernando Poo, which may be too wet for breeding as are the neighbouring parts of Cameroon and Nigeria. On São Tomé and Príncipe it is a common bird, proven to breed, although it colonized Príncipe only between 1949 and 1954 (and existed c. 1866?); on Annobon it is a stray.

Discussion

In any case, the steady decrease over a long period by several unrelated species on the four Comoro islands seems to rule out change in migratory behaviour as a possible

cause. It also makes disease, hunting or other direct human interference unlikely explanations. One wonders if the supposed abandonment of slaughtering in the open or a general more enforced hygiene would be detrimental for the crow and the kite. The vegetation on the islands is ever more degraded, except perhaps on Mayotte where agriculture is decreasing. Given the preference that these birds have for regions with seasonal dry periods, we should investigate whether the climate may have undergone some critical changes, possibly with a series of abnormal wet years in a row. Rainfall data are available from 1951 to 1974 on a yearly basis but, unfortunately, only erratically for subsequent years (J. B. Ergo, pers. comm.). Examining the data available, at both stations (Pamandzi, on Mayotte and Moroni, on Grand Comoro), no such increase is apparent, either on a yearly basis or in the possibly critical months of the breeding season. In any case, the yearly mean of rainfall at Pamandzi (c. 1260 mm) would not seem to be excessive, although in most parts of the archipelago it is much higher. This possibly makes breeding there impossible for these species, and leaves only restricted parts as suitable.

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Migration of Palaearctic birds inland in Ethiopia

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A large passage of Palaearctic migrants was found in an area of southeastern Ethiopia in three springs. Observations indicated that many of the birds involved were apparently moving towards an exodus from Africa somewhere further to the north-east—a supposition supported by subsequent observations in Somalia (Ash & Miskell 1983, 1988) and Oman (Ash & Nikolaus in press).

Areas visited in April

Three spring-time visits were made to southern Bale Province and to the Borana district of Sidamo Province in the month of April during 1971–1974. This area lies to the southeast of Negele ($5^{\circ}20'N$, $39^{\circ}35'E$; 1470 m) extending to the borders with Somalia and Kenya. Over a very large area the habitat was rather similar, a thick *Acacia* and/or *Commiphora* bush interspersed with other deciduous trees, mainly 3–6 m high, in undulating and sometimes rather hilly country. Within this area there were areas of open grassland, such as that just to the east of Negele, where there were only scattered acacias. The following visits were made:

- 1971: 17–24 April. From Negele for 76 km to the ESE, towards Filtu, and for 54 km to the south towards Wachile.
- 1973: 16–20 April. From Dolo ($4^{\circ}11'N$, $42^{\circ}05'E$) for 390 km WNW, to Negele.
- 1974: 13–17 April. From Negele for 74 km to the ESE, towards Filtu, where a base in the bush was established for three days.

In April the rains throughout this area make travel difficult at times, produce a flush of green vegetation, and result in many large rain pools attractive to birds. To compare the situation elsewhere, a transect of 354 km through a similar area, slightly further east, was taken from Ginir ($7^{\circ}09'N$, $40^{\circ}42'E$) to Dolo, 9–16 April 1973. Much of this area must be extremely suitable to both longer term visiting migrants and others passing through, and offer a rich source of food. The Palaearctic migrants noted on these four visits are listed in Table 1.

Species and numbers recorded

Altogether c. 50 species of Palaearctic migrants—a few of these include Afrotropical races—were recorded, of which eight species on the Ginir-Dolo transect in 1973 were not recorded on the other three journeys.

In each year the Red-backed Shrike¹ was the most numerous and conspicuous species, in 1971 over 1000 were already accounted for by the third day of observation, on each of which many were present. There were fewer, but still very many, in 1973 and 1974. The next most plentiful species were Lesser Grey Shrike, Whinchat, Willow Warbler, and Spotted Flycatcher, but not always in this order; Spotted Flycatchers, for

¹Scientific names are not given in the text for those species listed in Table 1

Table 1. Numbers of Palaearctic migrants seen in southeast Ethiopia in spring

Species	Areas and dates covered		
	A Negele 17-24.04.71	B Dolo-Negele 16-20.04.73	C Negele 13-17.04.74
Lesser Kestrel <i>Falco naumanni</i>	23	—	—
Hobby <i>F. subbuteo</i>	7	5	8
Kestrel <i>F. tinnunculus</i>	5	—	4
Ringed Plover <i>Charadrius hiaticula</i>	1	>3	>2
Common Sandpiper <i>Actitis hypoleucos</i>	4	29	—
Wood Sandpiper <i>Tringa glareola</i>	38	27	—
Curlew Sandpiper <i>Calidris ferruginea</i>	—	40	—
Little Stint <i>C. minuta</i>	—	3	—
Great Spotted Cuckoo <i>Clamator glandarius</i>	2	—	—
Eurasian Cuckoo <i>Cuculus canorus</i>	29	1	—
Hoopoe <i>Upupa epops</i>	>1	>6	2
Barn Swallow <i>Hirundo rustica</i>	30	x	>60
Golden Oriole <i>Oriolus oriolus</i>	5	11	—
Nightingale <i>Luscinia megarhynchos</i>	6	3	1
Rock Thrush <i>Monticola saxatilis</i>	2	28	2
Isabelline Wheatear <i>Oenanthe isabellina</i>	1	4	1
Northern Wheatear <i>O. oenanthe</i>	3	16	—
Whinchat <i>Saxicola rubetra</i>	250-300	>150	67
Great Reed Warbler			
<i>Acrocephalus arundinaceus</i>	6	5	1
Sedge Warbler <i>A. schoenobaenus</i>	1	23	—
Willow Warbler <i>Phylloscopus trochilus</i>	300	100	38
Garden Warbler <i>Sylvia borin</i>	1	1	8
Whitethroat <i>S. communis</i>	2	30	9
Spotted Flycatcher <i>Muscicapa striata</i>	21	300	60
Tree Pipit <i>Anthus trivialis</i>	4	9	>46
Yellow Wagtail <i>Motacilla flava</i>	57	50	106
Red-backed Shrike <i>Lanius collurio</i>	>1000	>500	>102
Red-tailed Shrike <i>L. isabellinus</i>	1	13	—
Lesser Grey Shrike <i>L. minor</i>	250-300	>300	66

Notes: Also the following occurred singly: Grey Heron *Ardea cinerea* A; Night Heron *Nycticorax nycticorax* B; Pallid Harrier *Circus macrourus* A; Montagu's Harrier *C. pygargus* A, B, C; Greenshank *Tringa nebularia* B, C; Marsh Sandpiper *T. stagnatilis* B; Black-winged Stilt *Himantopus himantopus* B; Reed Warbler *Acrocephalus scirpaceus* B; Olivaceous Warbler *Hippolais pallida* B; Red-throated Pipit *Anthus cervinus* B.

See text for eight further species

x = present, but not counted

example, were in greatest numbers in 1973, fewer in 1974, and fewer still in 1971. These annual fluctuations may have depended on the timing of peak passage in each species, diversions along the migratory route, or the extent of overflying. Many spring migrants follow relatively narrow routes, in the same way that some autumn migrants do (Pearson *et al.* 1988), from which, conceivably, they may be diverted at some stage by factors such as active meteorological conditions, or the effects of rainfall on vegetation stages. Experience with spring migration elsewhere in eastern Africa and Arabia indicated that the period covered in southeast Ethiopia, 9–24 April, is at the earlier stages of migration for many of the species involved. However, Dr D. J. Pearson (pers. comm.) states that in nearby Kenya peak spring migration is during c. 1–25 April.

The main species on the Negele–Dolo journeys were only in smaller numbers on the Ginir–Dolo transect on 9–16 April 1973, but this may have been partly due to the slightly earlier dates. For example, there were only 1 Whinchat, 9 Willow Warblers, 4 Red-backed Shrikes, 5 Lesser Grey Shrikes, and no Spotted Flycatchers; but the following species were additional: 18 Eurasian Swifts *Apus apus*, 5 Alpine Swifts *A. melba*, >5 Red-rumped Swallows *Hirundo daurica*, 4 Rufous Bush Chats *Cercotrichas galactotes*, 6 Iranias *Irania gutturalis*, 1 Sprosser *Luscinia luscinia*, 6 Pied Wheatears *Oenanthe pleschanka*, and 1 Redstart *Phoenicurus phoenicurus*. By contrast with the foregoing, on a visit to the same area during a journey from Negele to Dolo and back on 25 February to 2 March 1989 only a small population of overwintering Palaearctic migrants was present—a total of 62 birds of 28 species. Of these, the following 13 species were not seen in April 1971–1974 on the Negele–Dolo route: Black Stork *Ciconia nigra*, Northern Pintail *Anas acuta*, Common Buzzard *Buteo buteo*, Eurasian Marsh Harrier *Circus aeruginosus*, Little Ringed Plover *Charadrius dubius*, Green Sandpiper *Tringa ochropus*, Eurasian Bee-eater *Merops apiaster*, Pied Wheatear, Redstart, Upcher's Warbler *Hippolais languida*, White Wagtail *Motacilla alba*, Grey Wagtail *M. cinerea*, and Great Grey Shrike *Lanius excubitor*. The bee-eaters were probably on early return migration.

Weights

Taking the weights of birds as a measure of their migratory fat content, the small numbers handled in 1971–1974 are compared with birds from elsewhere in Ethiopia and adjoining Somalia in an attempt to obtain clues to what the migrants were doing in the Negele area in April (see Table 2).

Were these, for example, lean birds which perhaps needed to fatten in this area, or were they fat birds ready for long onward flights? Great Reed Warblers were on average c. 16 per cent heavier than birds caught elsewhere during both January–March and April–June. By contrast, Sedge Warblers were close to non-migratory weights, and some 32 per cent below average April–May weights elsewhere. Willow Warblers, Garden Warblers and Red-backed Shrikes were heavier by 10–16 per cent than birds in January–March, and close to April–May weights elsewhere. Other species were intermediate between January–March and April–May weights elsewhere, with Whitethroats 13 per cent higher than in January–March but still 7 per cent below average April–May weights, and Yellow Wagtails 3 per cent above winter weights, but still 6 per cent below average April–May weights.

Spotted Flycatchers were presumably carrying some fat, as they were equal to April–May weights elsewhere. They were much heavier (34 per cent) than the only bird I

Table 2. Weights (g) of Palaearctic migrants in spring in southeast Ethiopia compared with those obtained elsewhere in the country

Species	SE Ethiopia			Elsewhere			months
	mean	range	n	mean	range	n	
Great Reed Warbler	36.0	28.4–47.1	7	30.8	23.5–39.9	22	i–iii
				30.9	24.2–45.2	42	iv–v
Sedge Warbler	10.8	10.0–11.5	2	10.5	7.5–13.9	25	i–iii
				13.4	10.0–16.8	13	iv–v
Reed Warbler	10.0		1	11.0	8.1–17.6	202	i–iii
				11.9	8.9–20.0	208	iv–v
Olivaceous Warbler	8.3		1	9.9	8.0–12.3	70	i–iii
				9.4	8.3–10.3	5	iv–v
Willow Warbler	9.8	7.2–14.2	27	8.9	6.4–15.1	127	i–iii
				9.9	6.3–14.3	98	iv–v
Garden Warbler	19.9	19.3–20.9	3	17.2	15.9–18.9	7	i–iii
				20.3	14.5–34.3	149	iv–v
Whitethroat	15.0	11.3–19.1	9	13.3	10.9–15.8	81	i–iii
				16.2	13.0–22.1	20	iv–v
Spotted Flycatcher	16.3	15.5–17.5	4	12.2		1	i–iii
				16.3	12.2–20.8	10	iv–v
Tree Pipit	24.2	21.2–33.1	7	21.6	17.7–25.3	107	i–iii
				19.6		1	iv–v
Yellow Wagtail	16.3	15.1–17.9	8	15.8	12.0–26.9	113	i–iii
				17.4	13.5–21.6	29	iv–v
Red-backed Shrike	29.1	22.7–33.4	7	26.0	25.2–27.2	3	iii
				29.3	22.7–33.4	9	iv–v

weighed during January–April, but not much more than passage birds in spring in Oman (15.6 g, range 12.7–20.6 g, n = 170) (Ash & Nikolaus in press). Tree Pipits were 12 per cent heavier than January–March birds, but the only April–May bird was light.

Generally April weights were not particularly high, although eight out of 11 species had mean weights above those of January–March. There was no indication that a large proportion of heavy birds was present, suggesting it was necessary either to stay longer in the area to fatten, or to move on quickly to a fattening area elsewhere. Birds may, of course, have recently used up lipid reserves on a long migration from further south. These periods of observation in mid-April were probably before the peak of spring migration, so that further observations at later dates are required before the situation can be fully understood.

Diurnal passage

An unusual event occurred on 21 April 1971 when many birds generally regarded as night migrants were apparently migrating during the day. At 54 km south of Negele many calling Red-backed Shrikes and Willow Warblers were heard at dawn (*c.* 06:00). At least some of these birds were flying overhead, but the thick woodland cover prevented me from seeing what was happening. From the top of a small hillock 40 min later there was an open view over the woodland through an arc between south and west. Throughout this arc groups of Red-backed Shrikes were sitting on the tree-tops, usually three or four together, and once as many as 14. Among them were Willow Warblers. Birds from these groups constantly took off to join other birds flying past, the Willow Warblers flying at tree-top level and the shrikes rather higher. At the same time smaller numbers of Barn Swallows, Yellow Wagtails and Eurasian Cuckoos, and two and three Golden Orioles flew past, all at about the same height. Through binoculars migrants could be seen flying above the trees for as far as could be seen. The cuckoos being larger could be spotted, sometimes in loose parties of four or five, probably for up to 2–3 km away, flying straight towards me at tree-top level. All the birds seen were flying steadily ENE (*i.e.* from the WSW). The movement was still in progress when observation ceased at 08:30, by which time all the species involved were fewer.

Possibly these birds were continuing a migration which had begun the previous night, although certainly many were taking off from trees, which suggests perhaps all were at the start of a diurnal passage. Alternatively, they may have come down during the night and have been continuing after a rest. Whichever was the case, it seems remarkable that a movement involving many hundreds of migrants should be seen in the middle of a vast area of uniform habitat. Unfortunately there were no estimates of bird numbers on the previous evening. There was no obvious reason why they should be concentrated on the relatively narrow band possibly 1–2 km wide over which they could be seen, so that if this were merely part of a broad-front migration the total involved must have been very large. Perhaps the most interesting aspect of the movement was the direction of flight; most unexpected for migrants heading for eventual breeding areas to the north. Possibly they form a link with the movement through northern Somalia (Ash & Miskell 1988) and Oman (Ash & Nikolaus in press).

Discussion

Diurnal group flight of Eurasian Cuckoos may not be unusual, but only two other cases have been traced. Interestingly one was 700 km to the southeast in Somalia, where ten flew NE at dawn on 6 May, an inversion mist being present at the time (Douthwaite & Miskell 1991). Moreau (1972) also refers to excited groups of cuckoos flying about together during spring migration.

It is unfortunate that Benson (1945, 1946) who spent ten months in an intensive study of birds in southern Ethiopia and visited the Negele area in late March, missed the main spring migration months of April and May. However, the Negele area was, for him, obviously of exceptional interest as far as migrants were concerned in southern Ethiopia, even at this early date when relatively few would be moving. His comments on three species support this view: he saw Barn Swallows rarely except for numbers near Negele on 23 March (Benson 1945), he recorded as exceptional 12 Whinchats at

Negele and for 48 km to the north on 21–22 March (Benson 1946), and adult male Red-backed Shrikes on five occasions in the last week of March at Negele and at only two other sites (Benson 1946). This is further evidence that the Negele area holds unusually large numbers of spring migrants. In my personal experience throughout Ethiopia and Somalia I have found no other area comparable for spring passerine migration.

It is difficult to understand why there should be a concentration of migrants in a vast area of relatively uniform habitat. It certainly suggests the existence of a regular flyway, similar to that used by some migrants through northeastern Africa in autumn (Pearson *et al.* 1988) and from Africa to Arabia in spring (Ash & Nikolaus in press).

The diurnal movement of what are usually night migrants is also difficult to explain. It may have involved the reorientation of passage birds which had strayed off-course during the previous night, although it is difficult to understand why there should have been any immediate need to correct such an error. Or possibly they were flying towards the area of concentration east of Negele, although it would seem that continuation of movement in an ENE direction might result in more easting than would be required to return towards northern breeding areas. However, a similar ENE flight direction has been noted in Somalia and Oman. On 9 May hundreds of Willow Warblers left ENE into the wind at 30 min before sunset at Takoshe (11°21'N, 43°24'E) in northwestern Somalia close to the Djibouti border (Ash & Miskell 1988), and in spring 1992 most migrants departing from oases in the Empty Quarter of Oman departed to the ENE (Ash & Nikolaus in press). Taken together these movements point towards the existence of an important flyway for spring migrants through eastern Ethiopia and northern Somalia to Oman (presumably via Yemen).

If the main flight direction of migrants passing through this region is more or less northeasterly, one might speculate that these ENE flights involve birds which had overwintered in the western sector of their furthest non-breeding area. These would need to make more easting at some stage of their flight in order to join up with those overwintering further east in southern Africa. The channelling of migrants into relatively proscribed bands through northeast Africa and Arabia is likely to be a strategy adopted by spring migrants as well as by the autumn migrants discussed by Pearson *et al.* (1988).

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Changes to the Somalia check-list

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Changes to the Somalia check-list (*Birds of Somalia*—Ash & Miskell 1983) since its publication have practically all been summarized by Douthwaite & Miskell (1991). A few further additions and deletions are reported on here.

The *Birds of Somalia* is divided into five lists, which continue to be used, as follows:

- List A Species recorded in Somalia. The substantive list of all species reliably recorded in Somalia.
- List B Species recorded off-shore, out of sight of land. These may be expected as additions to List A in time.
- List C Species for which confirmation of identification is required.
- List D Species and/or subspecies not considered acceptable for inclusion in List A. These are birds which have been recorded in Somalia at one time or another, but are not regarded as being acceptable.
- List E Hybrids recorded from Somalia.

In the accounts that follow, the prefix numbers are those used in the Check-list together with new numbers allocated to the additional species. An asterisk (*) in List A indicates which species occur for those observers with travel restrictions—within 40 km of Mogadishu; a '+' sign indicates that the species has been recorded not more than ten times. As a cross-reference aid, the Mackworth-Praed & Grant (1957, 1960) number is given on the right of each species entry. The species involved above in Douthwaite & Miskell (1991) are as follows:

Check-list number	Species	Change
19a	<i>Fregata minor</i> Greater Frigatebird	Addition
40a	<i>Ciconia nigra</i> Black Stork	Addition
109a	<i>Pernis apivorus</i> Honey Buzzard	Addition
117a	<i>Falco cuvieri</i> African Hobby	Addition
124a	<i>Falco vespertinus</i> Red-footed Falcon	Addition
187a	<i>Gallinago media</i> Great Snipe	Addition
274a	<i>Cuculus clamosus</i> Black Cuckoo	Addition
314	<i>Ceryle maxima</i> Giant Kingfisher	Deletion—List D
326	<i>Merops oreobates</i> Cinnamon-chested Bee-eater	Deletion—List D
406a	<i>Corvus splendens</i> Indian House Crow	Addition
477a	<i>Locustella fluviatilis</i> River Warbler	Addition

The present situation regarding species occurrence in Somalia to the end of 1992 is shown in Table 1.

Table 1. Species occurrence in Somalia

Numbers of	Ash & Miskell (1983)	1993
Species recorded	639	650
Species breeding	263	288
Palaearctic migrants	>149	>155
Species recorded not more than ten times	188	175
Species recorded within 40 km of Mogadishu	371	386

Additions to the Check-list

List A

Species recorded in Somalia

243a *Sterna saundersi* Saunders' Tern*

357

I follow the wide recognition of *S. saundersi* as a species distinct from *S. albifrons*. The check-list annotation is:

"Very common breeding visitor, especially when breeding on SE coast in Apr–Sep; many non-breeding visitors on all coasts probably all involve *saundersi* (see Ash & Miskell 1983), but specifically it is reported from 2c, 11c, 17a, 63cd, 64ac, 67d, 68c, 69a. Breeding: 17a, 63cd, 64ac, 68c, 69a."

(The only records of *S. albifrons* in Somalia are in 2c (Ogilvie-Grant & Reid 1901) and 11c (Archer & Godman 1937). It is perhaps significant that there are few records of this species in Kenya, where *saundersi* is common.)

281a *Asio capensis capensis* African Marsh Owl+

533

One collected on 31 May 1901 at Bardera by Erlanger (Hilgert 1908). The check-list annotation is

"Presumed intra-tropical African migrant with one old record in South. 60c."

395a *Riparia paludicola* African Sand Martin*+

1069

Small flocks near Jiohar on 13 Aug 1989 (Miskell *et al.* 1989). The check-list Annotation is:

"Presumed intra-tropical African migrant with one new record in South. 63b."

594a *Ploceus subaureus* Golden Weaver*+

1341

Male nest-building at Balcad on 6 Nov 1987 (Schels *et al.* 1991). The check-list annotation is:

"Rare resident with one record in South. 60c. Breeding: 60c?."

List B

Species recorded off-shore, out of sight of land. These may be expected as additions to List A in time

Bo *Diomedea cauta* Shy Albatross

One seen on 18 Sep 1986 at 11°50N, 51°35E 33 km NE off Cape Guardafui in 57b (Meeth & Meeth 1988).

Boa *Daption capense* Cape Petrel

One seen on 26 Jan 1957 at 4°18N, 48°06E 22 km SE of Hocti Darute by R. S. Jones in 51c (Dr W. R. P. Bourne *in litt.*).

List C

Species for which confirmation of identification is required

Co *Larus armenicus*, *cachinnans* and *heuglini* Armenian,

Yellow-legged and Heuglin's Gulls

339

Possible records are retained under *L. argentatus* until the taxonomic situation of these forms is determined and generally accepted (Bourne 1989, Stepanyan 1990).

C3 *Cisticola bodessa* Boran Cisticola (additional note)

1024a

Erard (1974) separated this species from *C. chiniana*. Two old records on the Jubba (45c, 66c) assigned to *C. c. bodessa* by van Someren (1929) have not been traced for checking.

C4 *Laniarius liberatus* Bulo Burti Boubou

A recently described new species (Smith *et al.* 1991) is based on inadequate evidence at present, and is not included in List A.

List D

Species and/or subspecies not considered acceptable for inclusion in List A. These are birds which have been recorded in Somalia at one time or another, but are not regarded as being acceptable

D1a *Oceanodroma monorhis* Swinhoe's Storm Petrel

The Bailey *et al.* (1968) reference to three at 12°12N, 50°37E at 17 km offshore are listed only as probables in Bailey (1971). Tuck & Heinzel (1979) show the range of this species to be much further south in the Indian Ocean, and Brown *et al.* (1982), in referring to this reference, state erroneously that it extends west to Cape Guardafui, Somalia, and furthermore show it on a map as extending throughout the Red Sea.

D4aoo *Numenius tenuirostris* Slender-billed Curlew

Heuglin's (1859) records in Ethiopia and Somalia have generally not been accepted, and are not included in Gretton (1991), who only considered twentieth century records. Although its occurrence in both these countries is, and probably even more so, was,

distinctly possible, no justification has been found for the acceptance of this species, so it is relegated to List D.

D4ao *Cursorius rufus* Burchell's Courser

Hayman *et al.* (1987) include *C. cursor littoralis* and *C. c. somalensis* within *C. rufus*. Although recognizing the distinctiveness of these two races, they are left here with *C. cursor* until the situation is resolved further.

D4aa *Pterocles gutturalis saturatior* Yellow-throated Sandgrouse

372

A specimen stated to have been collected in Somalia by F. D. Jackson is in the Field Museum, Chicago, and confirmed as such with its label by David Willard. Notwithstanding this, it is not included in List A being a highly improbable wanderer from its well-defined range in Kenya (Lewis & Pomeroy 1989) and Ethiopia (Ash: Ethiopian Atlas data).

D8a *Ceryle maxima* Giant Kingfisher

466

Deleted from List A by Douthwaite & Miskell (1991) and transferred to List D because of unsatisfactory identification. There is now a second record of a bird identified by call which is also placed in List D.

D9a *Hirundo obsoleta* Pale Crag Martin

1072

I follow Hall & Moreau (1970) and Voous (1977) by retaining *obsoleta* within *H. fuligula* in List A. There is a great range of variation within the many races of this species, and the continuous nature of the variation of measurements and colouration indicate that the races are very likely conspecific. R. J. Dowsett (pers. comm.) proposes to give *obsoleta* full specific status in his forthcoming Afrotropical check-list.

D13a *Cisticola chiniana* Rattling Cisticola

1024

Added here following its deletion from List A (see below).

Deletion from the Check-list

List A

Species recorded in Somalia

466 *Cisticola chiniana* Rattling Cisticola

1024

Now added to List D (see above). Specimens for three records of this species have been reidentified, viz:

- a. Juvenile, unsexed, 28 August 1964 Jiohar (Roche 1975)
- b. Juvenile male, 12 August 1970 Ola Uager (Roche 1978)
- c. Juvenile female, 13 August 1970 Ola Uager (Roche 1978).

Specimen a. was examined in the Paris Museum by C. Erard and identified as a young *C. galactotes*; b. and c., on loan from Florence, were examined by JSA and D. J. Pearson and identified as *C. brachyptera*.

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Request for information

The birds of the Serengeti National Park, Tanzania B.O.U. Check-list No. 5

This check-list will be out of print shortly and the author is revising the text for a new printing. Will anyone with Serengeti records please send them to the author,

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All records will be gratefully received and acknowledged.

Notes on the birds of the Kampala area

L. D. C. Fishpool

During the course of several recent visits to Uganda I have spent time at Namulonge Research Station ($0^{\circ}32'N$, $32^{\circ}35'E$), 30 km NE of Kampala, Uganda, a locality included by Carswell (1986) in her review of the birds of the Kampala area. Namulonge is an agricultural research station of some 440 ha. While a large part is devoted to crops, in particular cassava, a significant proportion of the land is fallow and down to a mosaic of long and short grassland, secondary bushland on older fallows, fast-disappearing forest remnants and papyrus swamps along drainage lines. These last have been cleared in places for agriculture.

A number of observations made of the birds while there, together with a few made at other sites locally, represent additions to Carswell (1986) or otherwise constitute noteworthy records. Notes are given below for those species of greater interest while the remainder are simply listed with locality and date.

Piapiac *Ptilostomus afer*

Two individuals were seen by Dr J. F. Walsh and me accompanying cattle at the Dairy College, Entebbe on 18 October 1992. Not mentioned by Carswell (1986) but widely distributed elsewhere in Uganda (Britton 1980).

Greater Swamp Warbler *Acrocephalus rufescens*

Carswell (1986) gives the status of this species as "recorded only in the literature at Entebbe", while noting that the Lesser Swamp Warbler *A. gracilirostris* to be "found in papyrus swamp, reeds and other lake [Victoria] shore vegetation...". Birds seen well (in response to playback of their vocalizations) in papyrus swamp at Namulonge on 5 April 1992 were identified as *rufescens*. They were conspicuously large, uniform plain dark grey above with no supercilium, while below they were paler grey throughout except for a whitish throat. The legs and feet were heavy, strong and dark, the bill long, fairly heavy and straight. The identification was supported by comparison of the recording with those published by Chappuis (1978) and kindly confirmed by Dr Chappuis himself to whom a copy of the recording was sent. This species had previously been heard and glimpsed on 13 October 1991 and 7 March 1992.

These observations do not conflict with the statement by Britton (1980) that there are no records of *A. rufescens* in the Lake Victoria basin in Uganda since the papyrus swamps at Namulonge form part of the drainage system of the Sezibwe River that feeds northwards into Lake Kyoga.

Singing Cisticola *Cisticola cantans*

Recorded at Namulonge on 6 October 1991 when two birds were seen and heard calling from a low acacia tree. The song, a loud, penetrative *ke-tink, ke-tink*, closely matched the recordings of this species published by Chappuis (1974). In appearance, a medium-sized cisticola with an unstreaked grey back, a bright rufous crown, nape and wing panel but without the rufous tinge to the face and forehead shown by the Red-faced Cisticola *C. erythrops*, which is very common at Namulonge. The Singing Cisticola was seen on two other occasions at Namulonge, one on both 15 March 1991 and 30

September 1992—the second also seen by Iain Robertson and Alan Brown.

This species is not listed by Carswell (1986). Britton (1980) lists it as being widespread throughout much of Uganda, although less so where *C. erythrops* is common.

Weyns' Weaver *Ploceus weynsi*

This species was observed in Mpanga Forest, 35 km west of Kampala, on 19, 20 and 26 April 1992 when several hundred were seen on each occasion, foraging very actively through the forest in loose flocks. On the last date a group of up to ten was also seen flying over a nearby papyrus swamp, about 5 km south of Mpigi, between Senene and Kasanje. They were also recorded at this locality on 31 October 1992 by Dr J. F. Walsh and me. These too were flying low over the papyrus at dusk in company with loose flocks of large numbers of Black-headed *P. cucullatus*, Yellow-backed *P. melanocephalus* and Vieillot's Black Weavers *P. nigerrimus*. All flew in the same direction, possibly to roost. Under the circumstances, assessing numbers was difficult but over 50 male Weyns' were identified. Weyns' Weaver was also recorded in Bogo Forest on the edge of Lake Victoria, some 30 km southeast of Lugazi—thus not in the Kampala area—on 28 March 1992 when at least 100 were watched gleaning in the forest canopy.

Carswell (1986) states that all recent records of this species "are very local and predominantly from the shore of Lake Victoria at Gaba, Entebbe and Kibanga Port...". The breeding of Weyns' Weaver is unknown although Ash *et al.* (1991) report the collection of a nest possibly of this species. It is worth recording, therefore, that a juvenile was seen to beg and be fed by a female in Mpanga on 26 April 1992.

Yellow-bellied Waxbill *Estrilda melanotis*

Recorded in rank vegetation in abandoned fields at Namulonge on 16 October 1990 (three to four), 29 September 1991 (two), 5 October 1991 (six to seven) and 29 February 1992 (five to six). Not mentioned by Carswell (1986) while Britton (1980) suggest the nearest records are from Mubende to the west and Mt Elgon to the east.

White-collared Olive-back *Nesocharis ansorgei*

Seen at Namulonge at three different sites. Most frequently found in rank vegetation beside partially cleared papyrus swamp where it fed on seed heads of the yellow composite flower *Melanthera scandens*, the only known food plant of this species (Chapin 1959, Goodwin 1982). The species was recorded on 11 occasions in October 1991 and between February and May 1992; a maximum of seven birds, including a group of four, was seen on 29 February 1992.

The Namulonge birds differed from the illustrations and descriptions in the standard works (Mackworth-Praed & Grant 1960, 1973, Williams & Arlott 1980) in two ways. These, and other authors (Ogilvie-Grant 1910, Chapin 1954, Schouteden 1960, Hall & Moreau 1970, Goodwin 1982) indicate the entire head to be black. In all the birds seen the black colouration only extended as far as the hind crown. The nape and hind-neck were grey and formed a much wider collar between the black of the head and the olive mantle than most of the literature suggests. Only Jackson (1938) describes the nape as grey and this feature is apparent in the photograph of a female in Lippens & Wille (1976).

Furthermore, all references consulted state or indicate the breast of the male (not both sexes as Mackworth-Praed & Grant (1960) and Williams & Arlott (1980) imply) to be

wholly olive-green. This colouration is said by Ogilvie-Grant (1910) to extend "across the entire chest in a wide band". On the males seen at Namulonge (at least four) the olive on the breast formed a neat, well-defined and conspicuous crescent, with the points of the crescent meeting the folded wing shoulder, the horizontal upper border just touching the white collar at the centre of the throat and the lower border describing a relatively shallow, even curve across the breast. In consequence, the grey of the lower breast and belly extended up the flanks to the wing shoulder.

The breast pattern of the single male specimen at the British Museum (Nat. Hist.) at Tring, from Mpanga Forest, Fort Portal, is consistent with the published descriptions, as is another single male in the National Museum, Nairobi, from Kalinzu Forest, eastern Uganda (E. Waiyaki, *in litt.*). However, from an examination of the five male skins in Tervuren, Dr M. Louette (*in litt.*) writes that the amount of olive on the breast to be "somewhat variable" and "large crescent-shaped". He suggests the apparent discrepancy between earlier descriptions and my observations to be an artefact of skin preparation.

This species has previously been recorded from the Kampala area, at Gaba on the edge of Lake Victoria (Carswell 1986).

Magpie Mannikin *Lonchura fringilloides*

A group of 10–15 Magpie Mannikins was seen on 1 March 1992 feeding in loose association with a large flock of Red-headed Queleas *Quelea erythrops* on an experimental rice plot at Namulonge. They were similar in size to the queleas with the head, tail and triangular breast patches at the wing shoulder black in colour, while the mantle, coverts and flight feathers were brown with no barring. Below they were plain white; bills blue-black. A further four individuals were seen at the same site, also feeding on rice, on 20 October 1992, of which one was an adult and the other three immatures—head, wings, mantle and tail brown, below buffy throughout, bill dull black, base of lower mandible paler. They were confiding, allowing approach to within 5 m. These consorted with Black and White Mannikins *L. bicolor* while Bronze Mannikins *L. cucullata* are also common at this site.

The only previous Uganda records of this species are from the Bwamba lowlands in the west (Britton 1980). Carswell (1986), however, mentions, but does not accept for lack of detail, a record of this species from Kampala given by Allen & Fripp (1964). Until recently, when Robertson (1992) recorded it from Alupe in western Kenya, a few kilometres from the Ugandan border, the nearest known locality for this species to the east was Taveta in southeastern Kenya (Britton 1980).

Other records of interest, from Namulonge unless stated otherwise

Little Bittern *Ixobrychus minutus* One female 13, 19, 20 October 1991.

Banded Snake Eagle *Circaetus cinerascens* One 14 September 1991, pair 5 October 1991.

Little Sparrowhawk *Accipiter minullus* One 1 March 1992.

Gabar Goshawk *Melierax gabar* One immature 7 April 1992.

White-spotted Pygmy Crake *Sarothrura pulchra* Heard in March, September and October (1991 and 1992).

Painted Snipe *Rostratula benghalensis* One male 1 March 1992.

[**African Snipe** *Gallinago nigripennis* The remains of a snipe, badly damaged in a road-kill, were found near the entrance to Namulonge on 2 May 1992. The amount of white in the tail suggested that it was this species.]

Green Wood Hoopoe *Phoeniculus purpureus* Four 14 September 1991; also two at Gayaza (0°27'N, 32°37'E) 19 September 1991.

Yellow-billed Barbet *Trachylaemus purpuratus* Two 2 October 1991.

Buff-spotted Woodpecker *Campetherina nivosa* One male 2 October 1991.

African Penduline Tit *Remiz caroli* One 12 October 1991; also three to four at Kifu Forest 4 October 1992.

Slender-billed Greenbul *Andropadus gracilirostris* Up to four on three dates in October 1991.

Black-throated Apalis *Apalis jacksoni* A pair 2 October 1991.

White-winged Warbler *Bradypterus carpalis* Heard October 1991, March–May 1992, two seen 21 March 1992.

Yellow Warbler *Chloropeta natalensis* Seen September, October 1991, March, April 1992 at three different sites within Namulonge.

Carruthers' Cisticola *Cisticola carruthersi* One seen and heard 21, 29 March, 5 April 1992.

Ashy Flycatcher *Muscicapa caerulescens* A pair 15 March 1991.

Grey-throated Flycatcher *Muscicapa griseigularis* One 2 October 1991.

Shrike Flycatcher *Megabyas flammulata* One male 14 September 1991.

African Firefinch *Lagonosticta rubricata* A pair 14 September 1991.

Papyrus Canary *Serinus koliensis* Recorded on nine dates in February, March, April, May, September, October 1991–1992.

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New bird records from Budongo and Kifu forests, Uganda, with an addition to the East African avifauna

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The avifauna of Kifu Forest near Kampala (0°26N, 32°44E) was discussed by Hamel (1980), while Howard (1991) listed the bird species known from Budongo Forest, western Uganda (1°45N, 31°35E). During the course of visits to these forests in October 1992, several bird species were recorded which apparently constitute new records. These are discussed below; one species, the Lemon-bellied Crombec *Sylvietta denti*, represents an addition to the avifauna of Uganda and East Africa.

Cassin's Spinetail *Neafrapus cassini*

One individual of this species was seen flying low over the canopy of Kifu Forest nature reserve on 17 October 1992 by Dr J. F. Walsh and me. It was identified by its all-white lower breast, belly and undertail coverts, contrasting with the dark throat and upper breast; the extremely short tail (shorter than the swept back wing tips) and the characteristic shape of the wings. The wings showed very broad secondaries, wider than both the tertials (which thus formed a notch where the trailing edge of the wing met the body) and the inner primaries. The outer primaries, by contrast, were long and held curved backwards so that the wing tips appeared hook-shaped. Thus the silhouette was very distinctive, as was the fluttering mode of flight.

Cassin's Spinetail has hitherto only been recorded in East Africa from Budongo Forest (Britton 1980), where indeed three were seen on 25 October 1992 in company with several Sabine's Spinetails *Rhaphidura sabini*.

Sabine's Spinetail *Rhaphidura sabini*

Two Sabine's Spinetails were also seen at Kifu on 17 October 1992 at the same site as the Cassin's Spinetail described above. They resembled Cassin's Spinetail in general colouration except for the prominent white upper tail and rump. They also had a much more 'conventional' silhouette with a conspicuously longer tail and wings of more uniform width. This species has not previously been recorded from Kifu but is known from the nearby Mabira Forest (Hamel 1980).

Grey-throated Barbet *Gymnobucco bonapartei*

Two individuals, seen in Budongo on 25 October 1992, seem, surprisingly, to constitute the first record of the species for this forest (Britton 1980, Howard 1991). However, as this fact was not appreciated at the time the observation was made, no further details were recorded.

Willcocks' Honeyguide *Indicator willcocksi*

A Speckled Tinkerbird *Pogoniulus scolopaceus* was seen in Budongo Forest on 9 October 1992 along the section of the road that leads to Sonso saw-mill known as the Royal Mile, behaving in an agitated manner and making chattering alarm calls. It soon became apparent that the object of its excitement was a honeyguide which the tinkerbird seemed to be trying to drive away. After some minutes a second tinkerbird was seen in a hole some 3 m above the ground in the trunk of a tree bordering the road.

The first tinkerbird repeatedly flew at the honeyguide which in response would move to a new perch, usually only a few metres distant. The honeyguide seemed to be behaving in a manner intended to make itself conspicuous as it always flew with its white outer tail feathers fanned wide and repeatedly alighted on the exposed, bare vertical trunk of a pale-barked tree, against which it stood out clearly. Occasionally the honeyguide would, in its turn, fly at the tinkerbird to displace it: when the honeyguide approached the (probable) nest hole the mobbing behaviour of the tinkerbird increased in intensity.

This scene was watched at close range (to less than 10 m) for over an hour during which the following description of the honeyguide was taken. Size small, slightly larger than the tinkerbird. Head plain grey but with some faint darker streaking on the fore- and mid-crown, visible only at close range; no loral spot or malar stripe, but with an indistinct pale eye-ring most obvious in front and behind the eye. Upperpart feathering, including the rump, dark olive-green with paler outer edges, giving a dark mottled appearance with the contrast most marked on the flight feathers. Central tail feathers dark, outer ones white except for dark tips ventrally. Underparts grey, plain except for some darker streaking on the flanks. Bill short, stubby and dark except for a paler base to the lower mandible. Legs dark. The similarity in overall colour and pattern of the two species was striking. A honeyguide of similar appearance was seen briefly at the same spot on 11 October, against which the Speckled Tinkerbird was still defending its territory.

The bird was subsequently identified as Willcocks' Honeyguide which Britton (1980) states has previously only been recorded in Uganda from the Impenetrable, Kibale and Kalinzu forests. Willcocks' Honeyguide is thought to be "probably nest-parasitic in its breeding habits" (Fry *et al.* 1988). These observations suggest that Speckled Tinkerbird may be a host.

Purple-throated Cuckoo Shrike *Campephaga quisalina*

A pair was seen and heard in the canopy of Kifu Forest nature reserve on 4 October 1992. While the male was not seen well, the female was readily identifiable. The head was grey, palest on the throat and with a pale supercilium and a darker eye-stripe. The remainder of the upperparts were pale yellow-green; the underparts from breast to under tail coverts were plain bright yellow with no darker barring visible. The call was a penetrating peeo, descending in pitch.

Carswell (1986) states that this species is "recorded in the literature from Mabira forest", while elsewhere in Uganda it is known from Mubende and Mt Elgon (Britton 1980).

Tit *Hylia Pholidornis rushiae*

This species was seen in both Kifu Forest nature reserve (4 October 1992) and along the Royal Mile in Budongo (9 October 1992). In both instances two individuals were seen together gleaning from small branches in the forest canopy. They were identified from the following details. The overall appearance was somewhat reminiscent in size, general shape and method of feeding of a penduline tit *Remiz* sp. The head, mantle and upper breast were dirty grey with conspicuous darker streaking; the wings and tail were dark, almost blackish, while the lower breast and belly were orange-red. The bill was short, straight and dark and the legs red. This species has only previously been recorded in East Africa from Mabira Forest (Britton 1980, Carswell 1986).

Lemon-bellied Crombec *Sylvietta denti*

An individual of this species was seen in Budongo Forest from a track close to the Royal Mile on 11 October 1992. It was in the company of a mixed bird party and was watched from a distance of some 30–40 m for 2–3 min in good light as it gleaned food acrobatically from branch tips, twigs, etc. in the lower canopy, at a height of some 15–20 m. The bird was obviously a crombec *Sylvietta* as it had a very short, to the point of non-existent, tail. The sides of the head were grey with an indistinct paler supercilium and a rather darker eye-stripe. The upperparts were entirely grey-green, darkest on the crown. Below there was an ill-defined gingerish patch on the throat merging into grey on the upper breast while the lower breast, belly and under tail coverts were yellow. The legs were pale and the bill all dark.

This appears to be the first East African record of this species although its presence in Uganda is not unexpected, as was recently pointed out by Ash *et al.* (1991), since it is known from near Beni (0°28N, 29°28E) on the Zaïre side of the Semliki valley (Chapin 1953).

With the exception of the spinetails and the barbet, all species were watched through a x20 telescope, which greatly helped the certain identification of the Tit Hylia and the crombec. The author has previous experience of all the species discussed above, as has Dr Walsh of the spinetail.

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Results of an ornithological survey in the Ukaguru and East Usambara mountains, Tanzania

T. D. Evans and G. Q. A. Anderson

The members of the Cambridge Tanzania Rainforest Survey 1990 visited Mtai Forest ($4^{\circ}52'S$, $38^{\circ}47'E$) in the East Usambara Mountains from 7 July to 14 August and the main block of forest in the Ukaguru Mountains ($6^{\circ}21'S$, $38^{\circ}47'E$) from 23 August to 14 September 1990. Birds, reptiles and amphibians were studied in both forests, and butterfly and fish surveys carried out in Mtai. The final expedition report is to be published as a BirdLife International study report¹.

The two ornithologists combined direct observation with mist-netting. The key results of the bird study are presented here, along with some notes on the conservation prospects for each forest.

Background

The birds of the East and West Usambaras have been comparatively well studied, in particular by Moreau, who lived there in the 1930s (e.g. Moreau 1935, 1966) and more recently by Stuart & Hutton (1978) and Stuart (1983). The fauna and flora are very diverse, including perhaps the richest forest avifauna in the Eastern Arc zoogeographical region (Rodgers & Homewood 1982). Collar & Andrew (1988) list seven threatened and three near-threatened species there, including the Usambara endemics (Nduk Eagle Owl *Bubo vosseleri* and the Usambara Ground Robin *Dryocichloides montanus*). Work in the East Usambaras has mostly been on the plateau around Amani, in submontane forest at 900–1050 m, with few reports from areas at different altitudes to the north and east. Mount Mtai is the most northeasterly of the Usambara forests, covering only 2900 ha, and largely lowland in character. There is a small submontane area between 900 m and the ridge-top at 1050 m.

There are only three published accounts of Ukaguru birds (Fuggles-Couchman 1939, Friedmann & Stager 1964, Stuart & van der Willigen 1979), all referring to brief visits and only the third involving any mist-netting. Collar & Andrew (1988) list one threatened and two near-threatened species, while N. E. and E. M. Baker found a second threatened species—the Iringa Ground Robin *Dryocichloides lowei*—on a brief visit in 1989 (verbally, 1990). The remaining forest there runs from 1500–2600 m, is montane in character and still fairly extensive (over 10 000 ha, Stuart & van der Willigen 1979, Evans *et al.* in prep.).

Records of particular interest

We recorded 91 species in the forested areas of Mt Mtai (35 d of fieldwork) and 61 in the forests of the Ukagurus (22 d of fieldwork). Complete species lists are given in our final project report (Evans *et al.* in prep.). Our records of seldom-reported species and observations of breeding for all species are discussed below. Our fieldwork was conducted in the dry season, so few birds were breeding.

¹ Available from BirdLife International, 32 Cambridge Road, Girton, Cambridge, CB3 0PJ, England

Species names, preceding reference numbers and notes on distribution and abundance are from Britton (1980). Categories of threat on the right are from Collar & Andrew (1988).

Mt Mtai records

52. *Botrychia olivacea* Green Ibis

One on 1 August and two on 2 August in dense ridge-top forest at 1000 m. Also heard on four nights in July at 350 m.

415. *Bubo (poensis) vosseleri* Nduk Eagle Owl

Threatened

One probably heard on 5 August at 1000 m. A faint recording of an eagle owl's call was obtained from deep in the forest, an area where no other species is likely to occur. The status of this little-known and rare bird is unclear. Britton (1980), following White (1965), treats it as an isolated subspecies of the West African *B. poensis* (Fraser's Eagle Owl), some other authors as a separate species, *B. vosseleri* (Collar & Stuart 1985, Collar & Andrew 1988). In any case, it is limited in East Africa, to the Usambaras where it has been rarely recorded, from 900–1500 m (Britton 1980, Collar & Stuart 1985). There is a 'possible' record from the Nguru Mountains (Moreau 1964).

640. *Psalidoprocne pristoptera* Black Rough-wing

Common along the ridge-top at 900–1000 m. Breeding recorded (many dependent juveniles were seen).

—. *Swynnertonia swynnertoni* Swynnerton's Forest Robin

Threatened

Two, an adult male and an adult female, were netted at 550 m in July. They appear to represent a new population and subspecies, some 400 km north of the nearest known birds in the Uzungwas (Stuart & Jensen 1981, Anderson & Evans in prep.).

1046. *Prionops scopifrons* Chestnut-fronted Helmet Shrike

Flocks of 15–20 recorded at c. 400 m in mid August. Small numbers of Green Wood Hoopoes *Phoeniculus purpureus* were associating with the flocks.

1068. *Poeoptera kenricki* Kenrick's Starling

Sizeable flocks (>20) around 950 m, and one bird netted.

1083. *Anthreptes neglectus* Uluguru Violet-backed Sunbird

Near-threatened

One in a mixed species flock at 400 m on 10 August.

1088. *Anthreptes reichenowi* Plain-backed Sunbird

Near-threatened

Singles in mixed species flocks at 400 m on 10 and 11 August.

1089. *Anthreptes rubritorques* Banded Green Sunbird

Threatened

Two small parties, one of five birds in a clearing at 1000 m seen on several days, and another of two birds in a mixed species flock at 900 m.

1242. *Mandingoa nitidula* Green-backed Twinspot

Present from 350–950 m.

1259. *Spermophaga ruficapilla* Red-headed Bluebill

Four individuals of the isolated subspecies *cana* caught, at 350 m, 550 m (two) and 950 m.

Ukaguru records**382. *Tauraco livingstonii* Livingstone's Turaco**

Pair observed in courtship display at 1850 m in early September.

759. *Dryocichloides lowei* Iringa Ground Robin**Threatened**

Six netted and two seen at 1800 m in August. Britton (1980) records the species only above 2000 m. Caught in nets in the open along the road through the forest and in one instance two were watched feeding among herbs and low branches at the roadside.

766. *Modulatrix stictigula* Spot-throat

Five netted at 1800 and 1500 m.

830. *Bathmocercus winifredae* Mrs Moreau's Warbler**Threatened**

Five netted, at 1500 m (two) and 1850 m (three).

844. *Chloropeta similis* Mountain Yellow Warbler

Twice seen at 1700 m at forest edge. First record for the Ukagurus.

933. *Melaenornis chocolatina* White-eyed Slaty Flycatcher

One pair nest-building in bushes by a road at 1800 m on 28 August.

1110. *Nectarinia moreauai* Moreau's Sunbird**Near-threatened**

One of the commonest species at 1850 m, also present at 1500 m. Two occupied nests were found at 1800 m and one was seen in construction at 1550 m.

1242. *Mandingoa nitidula* Green-backed Twinspot

Seen at 1850 m and caught at 1500 m.

1279. *Linurgus olivaceus* Oriole Finch

Several seen and singles ringed at 1800 m and 1600 m.

Ringing records*Methods*

Nets were set, successively at a range of altitudes in each forest and were moved every few days, to maximize catch rates. Five or six nets were used at Mtai, ten to 12 in the Ukagurus. One 10-m-long net was used in both areas, the rest being 12-m. Nets were opened at dawn, closed before dusk and occasionally closed during the middle of the day when bird activity was low. Nets were checked every hour and birds processed in camp or at a temporary ringing station. Descriptions of all netting sites, with the number of net-metre-hours operated at each, are given in Table 1. No systematic results were required from the ringing, the object being to locate as many species as possible. The secondary aim of the mist-netting was to provide data for the ringing scheme of

eastern Africa, therefore all birds caught were fitted with metal rings inscribed INFORM MUSEUM NAIROBI and measurements taken of weight, wing, tarsus, tail and bill. Moult, brood-patch and fat scores were also noted.

Table 1 summarizes the netting operation and Table 2 indicates the number of individuals of each species we ringed in each forest, and at which ringing sites. Ringing sites were mapped and given a unique reference number to allow future workers to identify them; the maps are available from the authors.

Table 1. Details of the ringing sites

Site	altitude (m)	habitat	No. of net-m-h	No. of birds caught	No. of species
Mtai 1	350	Lowland forest edge	1825	30	13
Mtai 2	550	Lowland forest interior	1575	15	6
Mtai 3	900	Submontane forest edge (ridge-top)	1970	39	16
Mtai 4	950	Submontane forest interior (ridge-top)	1360	99	14
Mtai 5	850	Submontane forest interior	289	22	7
Subtotals			7019	205	33
Ukaguru 11800		Montane forest interior (+ open road)	5555	106	23
Ukaguru 21850		Montane forest interior (+ open road)	3615	70	17
Ukaguru 31500		Montane forest interior	5340	148	24
Subtotals			14510	324	33
Totals			21529	529	53

Table 2. Mist-netting totals and sites for each species

Species	Mtai No.	Mtai site(s)	Ukagurus No.	Ukagurus site(s)
African Goshawk <i>Accipiter tachiro</i>	—	—	1	3
Tambourine Dove <i>Turtur tympanistria</i>	1	4	1	3
White-browed Coucal <i>Centropus superciliosus</i>	1	3	—	—
Bar-tailed Trogon <i>Apaloderma vittatum</i>	—	—	1	3
Pygmy Kingfisher <i>Ispidina picta</i>	1	1	—	—
Green Barbet <i>Buccanodon olivaceum</i>	3	3	—	—
Moustached Green Tinkerbird <i>Pogoniulus leucomystax</i>	—	—	1	1
African Hill Babbler <i>Alcippe abyssinica</i>	—	—	12	1,2,3
Shelley's Greenbul <i>Andropadus masukuensis</i>	52	1,4,5	28	1,2,3

continued

Species	Mtaï		Ukagurus	
	No.	site(s)	No.	site(s)
Stripe-cheeked Greenbul <i>A. milanjensis</i>	3	2,4	6	3
Mountain Greenbul <i>A. tephrolaemus</i>	—	—	3	1,2
Little Greenbul <i>A. virens</i>	31	1-5	17	1,2,3
Nicator <i>Nicator chloris</i>	1	1	—	—
Yellow-streaked Greenbul <i>Phyllastrephus flavostriatus</i>	3	4,5	—	—
Olive Mountain Greenbul <i>P. placidus</i>	11	2,4,5	36	1,2,3
Common Bulbul <i>Pycnonotus barbatus</i>	4	3	—	—
White-chested Alethe <i>Alethe fuelleborni</i>	2	2,4	12	1,2,3
Robin Chat <i>Cossypha caffra</i>	—	—	2	1
Red-capped Robin Chat <i>C. natalensis</i>	3	1,3	—	—
Olive-flanked Robin Chat <i>Dryocichloides anomalus</i>	—	—	2	1
Iringa Ground Robin <i>D. lowei</i>	—	—	5	1,2
Spot-throat <i>Modulatrix stictigula</i>	—	—	4	2,3
White-starred Forest Robin <i>Pogonocichla stellata</i>	—	—	8	1,2,3
Sharpe's Akalat <i>Sheppardia sharpei</i>	2	4	—	—
Swynnerton's Forest Robin <i>Swynnertonia swynnertoni</i>	2	2	—	—
Orange Ground Thrush <i>Turdus gurneyi</i>	—	—	1	1
Bar-throated Apalis <i>Apalis thoracica</i>	—	—	6	1,2,3
Mrs Moreau's Warbler <i>Bathmocercus winifredae</i>	—	—	5	1,3
Evergreen Forest Warbler <i>Bradypterus barratti</i>	—	—	5	1,3
Grey-backed Camaroptera <i>Camaroptera brachyura</i>	6	1,3	—	—
Red-capped Forest Warbler <i>Orthotomus metopias</i>	—	—	8	2,3
Tawny-flanked Prinia <i>Prinia subflava</i>	1	3	—	—
White-eyed Slaty Flycatcher <i>Melaenornis chocolatina</i>	—	—	1	1
Forest Batis <i>Batis mixta</i>	4	2,4,5	26	1,2,3
East Coast Batis <i>B. soror</i>	1	3	—	—
Paradise Flycatcher <i>Terpsiphone viridis</i>	2	1,2	1	3
White-tailed Crested Flycatcher <i>Trochocercus albonotatus</i>	1	3	13	1,2,3
Crested Flycatcher <i>T. cyanomelas</i>	2	1,2	—	—
Black-backed Puffback <i>Dryoscopus cubla</i>	1	3	—	—
Fülleborn's Black Boubou <i>Laniarius fulleborni</i>	—	—	7	1,2,3
Kenrick's Starling <i>Poeoptera kenricki</i>	1	3	—	—
Collared Sunbird <i>Anthreptes collaris</i>	2	3	—	—
Moreau's Sunbird <i>Nectarinia moreau</i>	—	—	37	1,2,3
Olive Sunbird <i>N. olivacea</i>	41	1-5	31	1,2,3
Yellow White-eye <i>Zosterops senegalensis</i>	—	—	2	2
Dark-backed Weaver <i>Ploceus bicolor</i>	2	2	—	—
Red-faced Crimson-wing <i>Cryptospiza reichenovii</i>	8	3,4,5	31	1,2,3
Common Waxbill <i>Estrilda astrild</i>	1	3	—	—
Peters' Twinspot <i>Hypargos niveoguttatus</i>	1	1	—	—
Green-backed Twinspot <i>Mandingoa nitidula</i>	5	3,4	2	3
Red-headed Bluebill <i>Spermophaga ruficapilla</i>	4	1,2,4	—	—
Rufous-backed Mannikin <i>Lonchura bicolor</i>	2	3	—	—
Oriole Finch <i>Linurgus olivaceus</i>	—	—	2	1,3

Brood patch scores

Birds in the hand were scored on a 0–5 scale for brood patch (0 = no brood patch, 5 = very extensive brood patch) as detailed in Baker (1989). An enlarged and vascularized brood patch (scoring 4 or 5) may indicate that a bird has eggs in the nest and is incubating. Birds caught with this feature are listed in Table 3.

Table 3. *Birds netted with brood patch indicating breeding*

Species	site	No.	sex	altitude (m)	date
Bar-tailed Trogon	Ukagurus	1	m	1500	early Sep
Moustached Green Tinkerbird	Ukagurus	1	—	1800	late Aug
Shelley's Greenbul	Mtai	3	—	850, 950	early Aug
Shelley's Greenbul	Ukagurus	1	—	1800	late Aug
Little Greenbul	Ukagurus	2	—	1850	late Aug
Nicator	Mtai	1	—	350	late Jul
Yellow-streaked Greenbul	Mtai	1	—	850	early Aug
Fülleborn's Black Boubou	Ukagurus	2	—	1800	late Aug
				1850	early Sep
Moreau's Sunbird	Ukagurus	6	f	1800	late Aug
				1850	early Sep
Olive Sunbird	Mtai	1	f	850	early Aug
Red-faced Crimson-wing	Ukagurus	1	m	1800	late Aug

Conservation

Our work, and that of the other authors cited, demonstrates the importance of these Eastern Arc forests for the conservation of genetic diversity, which is quite out of proportion to their size. The value of Mwanihana Forest Reserve in the Uzungwas has recently led to its incorporation into a new National Park. Other Tanzanian Eastern Arc forests have at best Forest Reserve designation. Such sites were established as extractive reserves and/or for catchment protection, which sometimes conflicts with their importance for biological conservation.

Around half (1645 ha) of Mtai Forest is within a Forest Reserve. We saw little sign of agricultural encroachment. Mechanical logging is currently forbidden in the East Usambaras. Pitsaw logging, however, operates at a high level. We observed extensive damage to soil and neighbouring trees. There is a severe risk of the forest being degraded by disturbance, selective removal of emergent trees and fragmentation of the canopy. Secondary forest lacks the deeply shaded undergrowth which may be vital for, among others, Swynnerton's Forest Robin and the scarce amphibians of the Usambaras. (Hamilton & Bensted-Smith (1989) provide a full review of conservation in the East Usambaras.)

All of the Ukaguru forests are in Mamiwa Kisara Forest Reserve. Little encroachment reportedly occurs on the north side, but apparently it is severe in the south where the reserve boundary is not marked. Currently commercial logging is negligible

because of the area's remoteness, but a new road is proposed to allow exploitation of the neighbouring softwood plantations, and this might make logging economically viable in the future. The main problem is that the forest supplies most of the fire- and building-wood for around 10 000 surrounding households. Local forest officers recognize that this is unsustainable, and there are now plans to greatly expand the production of tree seedlings (S. Malisa, Nursery Officer, Mamiwa Kisara, verbally). With these, the reserve boundary can be demarcated and village woodlots established to relieve pressure on the forest. The Wildlife Conservation Society of Tanzania is funding this grass-roots conservation scheme.

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Range extensions and other notes on some restricted-range forest birds from West Kilombero in the Udzungwa Mountains, Tanzania

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The Udzungwa Mountains are located in central Tanzania and have an altitudinal range of 300 to 2600 m. They are part of the Eastern Arc Mountains which are defined on phyto-geographical evidence as the ancient crystalline mountains under the direct climatic influence of the Indian Ocean, situated in southeast Kenya and eastern Tanzania from the Taita Hills to the Udzungwa Mountains (Lovett 1990). The Eastern Arc Mountains are well-known for their high level of endemism (for a review see Collar & Stuart 1988). The Udzungwas are also part of the East Coast Escarpment Montane Forest Group stretching from the Usambara Mountains in Tanzania to the Nyika Plateau in Malawi which has been defined on the basis of avifaunal distribution and which largely corresponds to Moreau's Tanganyika-Nyasa Montane Group (Stuart *et al.* in press).

Several avifaunistic studies (reviewed in Jensen & Brøgger-Jensen 1992) have been carried out in the Udzungwa Mountains, which are probably the most important centre of endemism in Eastern Africa for birds and mammals (Rodgers & Homewood 1982, Jensen & Brøgger-Jensen 1992, this study). Some of the Udzungwa Mountain forests are reasonably well surveyed, for example: Mwanihana, Dabaga and Mufindi, and in part Kigogo Forest and the southern part of the Udzungwa Scarp Forest Reserve (Figure 1, Jensen & Brøgger-Jensen 1992). Other areas, including the large isolated forest tracts in West Kilombero Scarp Forest Reserve (as defined in Rodgers & Homewood 1982), have so far been unexplored.

The present paper summarizes observations from 1991–92 of certain little-known bird species (species treated in Collar & Stuart [1985]) from the West Kilombero Scarp Forest Reserve, with notes on geographical range, altitudinal range and ecology. Two new restricted-range bird species were added to the Udzungwa list: A distinctive new perdicine species with closest relatives in the Indo-Malayan region (Dinesen *et al.* in press) and Amani Sunbird *Anthreptes pallidigaster*. This underlines the importance of the Udzungwas as a "hot spot" for many restricted-range species. The known range within the Udzungwas was extended for several restricted-range species, including Rufous-winged Sunbird *Nectarinia rufipennis*. A complete species list for the areas visited will be published in a separate paper.

Study areas

We worked in the Ndundulu and Nyumbanitu Mountains, Iringa District, Iringa Region (Figure 1), within the West Kilombero Scarp Forest Reserve but outside the Udzungwa Mountains National Park (gazetted in February 1992).

The forest covering the Ndundulu Mountains east of Udekwa village forms only the westernmost part of a bigger forest area of 240 km² (36°27'–36°42'E, 7°39'–7°51'S) around the peak of Mount Luhombero (2576 m), the whole complex being surrounded by grassland. The study area has a continuous cover of forest from 1350 to 2400 m and is dominated by numerous ridges and steep slopes along permanent fast flowing

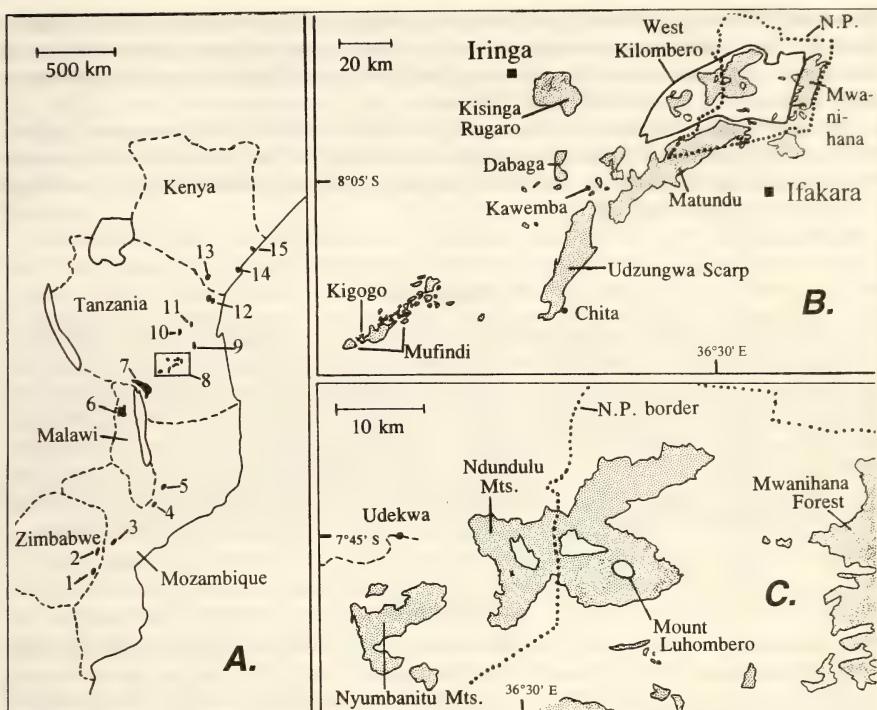


Figure 1. Maps showing localities mentioned in the text. **A.** eastern Africa:

1. Chirinda Forest, 2. Vumba Highlands and Stapleford, 3. Mt Gorongoza, 4. Mt Chiperone, 5. Mt Namuli, 6. Nyika Plateau, 7. Southern Highlands and Mt Rungwe, 8. Udzungwa Mts, 9. Uluguru Mts, 10. Ukaruru Mts, 11. Nguru Mts, 12. Usambara Mts, 13. Taita Hills, 14. Sokoke Forest, 15. Tana River. **B.** The Udzungwa Mts (enlargement of rectangle in **A**): border of West Kilombero Scarp Forest Reserve indicated by solid line, border of the Udzungwa Mts National Park with a dotted line. **C.** The Ndundulu and Nyumbanitu Mts

streams. The vegetation ranges from submontane evergreen forest to upper montane forest (*sensu* Pócs 1976) and is extremely varied, often within a few metres, in composition and structure, depending on, for example, altitude, orientation, soil and exposure. Some low-lying areas at 1350 to 1400 m at the forest edge had 20 to 25-m tall trees and were not as luxuriant as the interior wet forest between 1450 and 1750 m which had 25–35-m tall trees. More remote, and therefore less well surveyed, parts at about 1400–1600 m altitude had wet and very luxuriant forest with 40-m (emergents 50 m) tall trees abundant in epiphytes, and a mixture of places with open understorey and light gaps with dense vegetation. At altitudes above c. 1800 m and at some north- and west-facing slopes, the forest was drier with 20–30-m tall trees and denser undergrowth. A botanical survey was carried out by Hall (1986).

The Nyumbanitu Mountains south of Udekwa have 55 km² covered with forest (36°19'–36°26'E, 7°47'–7°54'S). In the study area the forest ranges from 1300 to 2300 m.

Between 1450 and 1750 m it was wet and luxuriant with 35–40-m tall trees. Below 1450 m it gradually became more dry but had many 30-m tall trees. Above 1850 m it contained much bamboo in the study area, but good high altitude forest was present as well, especially between 2100 and 2300 m.

The Udzungwa Mountains have a single rainy season from November to May peaking in March–April. Annual rainfall is estimated to be 1800–2000 mm on the southeast-facing escarpment, decreasing rapidly westwards to 660 mm yr⁻¹ at Iringa (Rodgers & Homewood 1982).

Methods

The observations were made during field work for our Master's thesis projects on montane forest birds. These studies deal with feeding ecology of greenbuls, mixed-species flocks, understorey bird communities and habitat requirements of different bird species. Field data were obtained by mist-netting and detailed observation. We spent four and a half months in the Ndundulus in July–September 1991 and November–January 1991/92 (altogether about 450 man days; 1280 birds of 58 species ringed) and one month in the Nyumbanitus in March–April 1992 (about 50 man days; 221 birds of 25 species ringed). Altitudes were measured using an aneroid Thommen altimeter.

Results

The nomenclature follows the first four volumes of *The Birds of Africa* (Brown *et al.* 1982, Urban *et al.* 1986, Fry *et al.* 1988, Keith *et al.* 1992). For species not yet treated in *BoA* we follow Britton (1980) except where otherwise stated. Where the number of individuals is mentioned we have tried to avoid repetitions. Ringed birds are not included in the number of observed birds.

Perdicini, unnamed genus and species

A new and very distinctive species (Dinesen *et al.* in press) of the tribe Perdicini (Phasianidae) was discovered in the Ndundulu Mountains on 3 July 1991 where a group of 3–4 birds were seen. Its closest relatives are hill-partridges *Arborophila* from Asia. The new species is locally common in the Ndundulu Mountains where it was seen on 78 occasions involving 227 bird sightings between 1350 and 1900 m. In the Nyumbanitus it was seen on seven occasions involving 19 bird sightings between 1500 and 1700 m and is probably locally common there as well. It is a bird of the forest interior and was mainly seen in small flocks of up to eight birds walking slowly on the forest floor. The species is quite easy to detect and it seems most likely that it is absent from other rather well surveyed areas of the Udzungwa Mountains such as Mwanihana Forest, Dabaga Forest and the southern part of the Udzungwa Scarp Forest Reserve. It should be noted that the known range of this new perdicine species, although not immediately threatened, is nevertheless extremely small.

Dappled Mountain Robin *Arcanator orostreuthus*

The systematic position of this rare species has been the subject of much controversy (see Irwin & Clay 1986, Jensen & Brøgger-Jensen 1992). It is known from only three isolated localities. The nominate subspecies was described in 1933 from Mt Namuli in

Moçambique (Vincent 1933), but there are no subsequent records from that locality. *A. o. amani* was described from the East Usambara Mountains (Moreau 1935), where population estimates range from a few hundred to a few thousand individuals (Keith *et al.* 1992). The Udzungwa race *A. o. sanjei* was discovered in 1981 in Mwanihana Forest, where it is uncommon (Jensen & Stuart 1982), and has subsequently been recorded between 1450 and 1700 m in the southern part of the Udzungwa Scarp Forest Reserve, where it seems to be fairly common (Jensen & Brøgger-Jensen 1992, Moyer in press).

In the Ndundulus 17 individuals were observed between 1450 and 1700 m, and one bird was ringed. The species appeared to be generally uncommon in the best surveyed areas but was more common in the more remote wet and luxuriant forest. In the Nyumbanitus 15 individuals were observed and two birds ringed between 1550 and 1750 m, where it was fairly common in wet, luxuriant forest.

All observations are from wet forest. The species was elusive and often difficult to see. It was strongly ground-dwelling, occurring in areas with scattered, tall herbs and also on places with open forest floor patches surrounded by more or less dense patches of shrubs, herbs and *Cyperus*. Recordings were made of three different types of song (all consisting of short, melodious, clear stanzas, sometimes resembling those of orioles), of the alarm call which was an unmistakable babble sounding like small bells, and of a three-noted whistling call (Svendsen & Hansen 1992).

The Dappled Mountain Robin lived sympatrically with the Spot-throat *Modulatrix stictigula* and the Pale-breasted Illadopsis *Trichastoma rufipennis* in both areas. The Spot-throat was, however, not restricted to middle altitude wet forest but was also common in the drier high altitudes of the Ndundulus.

Swynnerton's Robin *Swynnertonia swynnertoni*

The Udzungwa subspecies *S. s. rodgersi* is isolated by 1100 km from *S. s. swynnertoni* and *S. s. umbratica*, known from a few localities in Zimbabwe (Chirinda Forest, Vumba Highlands and Stapleford) and Moçambique (Mt Gorongoza) (Collar & Stuart 1985). It was discovered in 1981 in Mwanihana Forest, where it is uncommon (Jensen & Stuart 1982), and has subsequently been recorded in the southern part of the Udzungwa Scarp Forest Reserve between 1450 and 1700 m, where it is more common (Jensen & Brøgger-Jensen 1992, Moyer in press) and, surprisingly, in the foothills of the East Usambara Mountains below 400 m (Watson & Perkin 1992).

In the Ndundulus it was observed between 1350 and 1700 m on about 75 occasions (eight birds ringed), most frequently in the lower part of the altitudinal range where it must be locally common. Seen most often on the ground or on fallen logs, sometimes just above the ground on small branches. Observed in more or less wet forest, mainly in places with an open forest floor, an abundance of dead leaves and scattered patches of shrubs, herbs and *Cyperus*, but sometimes in more dense understorey vegetation. The species was very elusive and was heard more often than seen. Song and warning call were recorded, the song being a slow series of three (rarely four) melancholic, high pitched notes and the call a thin trill (Svendsen & Hansen 1992).

Sharpe's Akalat *Sheppardia sharpei* occurred sympatrically with Swynnerton's Robin and clearly outnumbered it. Iringa Akalat *Sheppardia lowei* was seen on only few occasions below 1650 m.

Swynnerton's Robin was not recorded in the Nyumbanitu Mountains although what we consider as suitable habitats were visited.

Iringa Akalat *Sheppardia lowei*

Known from a restricted number of montane forests in the Southern Highlands of Tanzania and the Udzungwas, most of them relatively dry. Also recently discovered in dry forest in the Ukaruru Mountains (Evans & Anderson 1992). In the Udzungwas it has been recorded from the southern part of the Udzungwa Scarp Forest Reserve, where it occurs in wet forest between 1400 and 1700 m (Jensen & Brøgger-Jensen 1992, Moyer in press), from Kigogo, Mufindi and Dabaga (Collar & Stuart 1985, Jensen & Brøgger-Jensen 1992) and from Kisinga Rugaro Forest Reserve (authors' observations 1992).

In the Ndundulu Mountains about 50 individuals were observed between 1450 and 2400 m and 16 birds were ringed. The Iringa Akalat was fairly common above 1800 m where the forest gradually changes to become more dry with a denser understorey. It was mainly seen on or near the ground, but when giving warning calls, sometimes up to 3 m above the ground. The Iringa Akalat was altitudinally segregated from the common Sharpe's Akalat, which occurred only up to 1850 m. The Olive-flanked Robin Chat *Cossypha anomala* occurred in much the same altitude and habitat as the Iringa Akalat but also in even drier forest parts. (See also notes under Swynnerton's Robin.)

In the Nyumbanitus, the Iringa Akalat was fairly common with 30 individuals recorded between 1500 and 1850 m and 33 birds ringed (including juveniles which were quite abundant in the study period). It occurred here in wet, luxuriant forest, unlike in the Ndundulus, and coexisted with Sharpe's Akalat. The latter definitely outnumbered it in the lower part, but the proportion of Iringa Akalat clearly rose with an increase in altitude. The Iringa Akalat probably occurs also above 1850 m here but that part of the forest was only briefly surveyed.

The alarm call (a rattle with sharp whistles incorporated) was recorded (Svendsen & Hansen 1992) but the song was seldom heard.

White-winged Apalis *Apalis chariessa*

Known from the Tana River in Kenya (possibly extinct), the Uluguru and Udzungwa Mountains in Tanzania and a small forest at Mount Chiperone in Moçambique (Collar & Stuart 1985). Several small forest localities in southeast Malawi have this species, but the total Malawi population accounts for only about 100 pairs (Dowsett-Lemaire 1989). In the Udzungwas it was previously known from Mwanihana, from the southern part of the Udzungwa Scarp Forest Reserve (Jensen & Brøgger-Jensen 1992, Moyer in press) and from Kawemba Forest Reserve (Lovett & Moyer in press).

In the Ndundulus it occurred at low densities but was not uncommon. Seen almost exclusively between 1350 and 1600 m but occasionally up to 2000 m, which is an altitudinal record for this species. In the Nyumbanitus it was seen on a few occasions at 1350 and 1550 m. Single birds or up to two pairs were joining in rich mixed-species flocks typically containing Square-tailed Drongo *Dicrurus ludwigii*, Dark-backed Weaver *Ploceus bicolor*, Grey Cuckoo Shrike *Coracina caesia*, Yellow-streaked Greenbul *Phyllastrephus flavostriatus*, Apalis warblers and sunbirds. White-winged Apalis foraged almost exclusively in the canopy up to 35 m above the ground but on a few occasions it was seen down to 3–4 m in light gaps. Met most frequently in tall, wet and luxuriant forest.

Uluguru Violet-backed Sunbird *Anthreptes neglectus*

Known from several records on the Kenya coast and from several coastal forests in

Tanzania and northern Moçambique (Collar & Stuart 1985). Fairly common in the East Usambaras (Britton 1980, Watson & Perkin 1992), less so in the Nguru and Uluguru Mountains (Britton 1980). In the Udzungwa Mountains it was previously known from Mwanihana and from the southern part of the Udzungwa Scarp Forest Reserve (Jensen & Brøgger-Jensen 1992, Moyer in press).

In the Ndundulus it was an uncommon member of mixed-species flocks between 1350 and 1400 m. A male was seen with two newly fledged young in December. From the Nyumbanitus there is a single observation of a male in a mixed-species flock at 1350 m.

Amani Sunbird *Anthreptes pallidigaster*

Formerly known only from the East Usambara Mountains 375 km north of the Udzungwas and from Sokoke Forest, Kenya, 250 km further north. In the East Usambara Mountains it occurs from the foothills up to 900 m, being generally uncommon (Collar & Stuart 1985, Watson & Perkin 1992). Sokoke Forest holds a population of 2900–4700 pairs virtually confined to *Brachystegia* woodland (estimated in the 1970s, Britton & Zimmerman 1979).

In the Ndundulus we found it locally in August (dry season, flowering shrubs and trees present), where two pairs and four single males were observed between 1500 and 1550 m. These are the first records of the species above 900 m. No races were recognized by Mackworth-Praed & Grant (1960) or Britton (1980). However, the Ndundulu males differed from the description in Mackworth-Praed & Grant by being bright metallic blue rather than bottle-green. An examination of the type specimen in Tring supports this observation. Thus the Ndundulu population possibly represents an unnamed subspecies.

The species was seen in the canopy about 35 m above the ground, joining in mixed-species flocks of Square-tailed Drongo, Stripe-cheeked Greenbul, Olive Woodpecker *Dendropicos griseocephalus*, Dark-backed Weaver, White-winged Apalis, Brown-headed Apalis *A. alticola* and Olive Sunbird *Nectarinia olivacea*. On these occasions it was seen feeding on arthropods on leaves. It was also seen 7 m above the ground, feeding on nectar together with Collared *Anthreptes collaris*, Banded Green *A. rubritorques*, Olive, Eastern Double-collared *N. mediocris* and Rufous-winged sunbirds *N. rufipennis*.

The nearby low-altitude Matundu Forest is likely to be an additional site for the Amani Sunbird.

Banded Green Sunbird *Anthreptes rubritorques*

Known from the Usambara, Nguru, Uluguru and Udzungwa Mountains, being common only in the East Usambaras (Collar & Stuart 1985) where it recently has been recorded as low as at 250 m in the foothill forests (Watson & Perkin 1992). From the Udzungwa Mountains there were previously only two observations from Mwanihana Forest: a small flock at 1000 m and a male at 850 m (Stuart *et al.* 1987).

In the West Kilombero forests it is also scarce. The only records are of a pair seen on 5 August at 1500 m and of a male seen at 1550 m later the same day, both in the Ndundulus. This is in the upper end of the known altitudinal range of this species. On both occasions the birds were seen 30–35 m above the ground in the highest canopies. The male in the pair foraged on arthropods in *Usnea* lichens and later the pair fed on nectar together with Amani and Collared sunbirds.

Rufous-winged Sunbird *Nectarinia rufipennis*

This distinctive species, discovered in 1981 in Mwanihana Forest (Jensen 1983) and formerly known only from this forest, was considered absent from the dry plateau of the Udzungwa Mountains (Collar & Stuart 1985).

Twelve birds were seen in the Ndundulus between 1350 and 1600 m. All observations were from the interior of wet forest and nearly all from light gaps with dense undergrowth and flowering plants. The observations are of single birds or pairs, seen mainly 2–7 m above the ground but as low as 0.5 m above the ground in December, probably near a nest. The species was also seen ascending from 3 to 30 m when briefly joining a mixed-species flock. Foraging observations include gleaning leaves for arthropods. It has so far only been recorded as a nectarivorous species (Collar & Stuart 1985). Nectar-feeding birds were seen several times at the red flowering shrub *Achyrosperrum carvalhi*, on some occasions together with Collared, Amani, Banded Green, Olive and Eastern Double-collared sunbirds. Breeding was proved in January when a female was seen feeding a juvenile bird.

The Olive Sunbird was common in the altitudinal range of the Rufous-winged Sunbird, whereas the latter was altitudinally segregated below the common Eastern Double-collared Sunbird, which was numerous only above 1600 m and not confined to the wet forest type.

Tanzanian Mountain Weaver *Ploceus nicolli*

We follow Collar & Stuart (1985) with respect to the English name and its species rank. The nominate form is known from the Usambara Mountains where it occurs at low densities (Collar & Stuart 1985). *P. n. anderseni* was described in 1983 (Franzmann 1983) and is known only from the Uluguru and Udzungwa Mountains. Recorded in Mwanihana between 1100 and 1700 m and at Chita at 1500 m (Jensen & Brøgger-Jensen 1992).

In the Ndundulus a few family flocks and single birds were observed at 1850 and 2150 m. The birds were foraging on invertebrates by hanging upside-down, searching epiphytes on the underside of branches. Also seen tearing off small pieces of bark. On none of the occasions did the birds join in mixed-species flocks. Seen at forest edges and crossing open glades of swamp and grassland.

Dark-backed Weavers occurred up to 2000 m but were rather uncommon between 1850 and 2000 m.

Thick-billed Seed-eater *Serinus (burtoni) melanochrous*

This incipient species is endemic to the forests of the Southern Highlands of Tanzania, Mount Rungwe and the Udzungwa Mountains (Collar & Stuart 1985). In the Udzungwa Mountains it has been recorded from Chita, Kigogo and Dabaga (Jensen & Brøgger-Jensen 1992) and from Kisinga Rugaro Forest Reserve (authors' observations, 1992).

It was recorded locally in the Ndundulus between 1700 and 2250 m (three birds ringed), mainly in dry forest above 1850 m. It was not uncommon but very quiet and easy to overlook. Observed from mid-stratum down to ground level, where it was seen foraging on seeds in grasses.

Table 1. Distribution of certain restricted-range (treated in Collar & Stuart 1985) Eastern Arc forest birds. 1 = Moçambique, 2 = Malawi, 3 = Southern Highlands, 4 = Udzungwa Mts, 5 = Uluguru Mts, 6 = Ukaguru Mts, 7 = Nguru Mts, 8 = Usambara Mts, 9 = Taita Hills, 10 = Kenyan coastal forests and 11 = Tanzanian coastal forests (4 - 9 are Eastern Arc Mountains)

	1	2	3	4	5	6	7	8	9	10	11
Southern Banded Snake Eagle											
<i>Circaetus fasciolatus</i>	●			●	●		●	●		●	●
Perdicini sp. nov.				●							
Unnamed genus and species											
Nduk Eagle Owl ¹											
<i>Bubo poensis vosseleri</i>								●			
Swynnerton's Robin											
<i>Swynnertonia swynnertoni</i>	●			●				●			
Iringa Akalat											
<i>Sheppardia lowei</i>			●	●		●					
Usambara Akalat											
<i>Sheppardia montana</i>								●			
Dappled Mountain Robin											
<i>Arcanator orostrethus</i>	●			●			●				
Taita Thrush ¹											
<i>Turdus abyssinicus helleri</i>								●			
White-winged Apalis											
<i>Apalis chariessa</i>		●		●	●					●	
Long-billed Apalis											
<i>Apalis moreaui</i>	●						●				
Taita Apalis ²											
<i>Apalis thoracica fuscigularis</i>								●			
Mrs Moreau's Warbler											
<i>Bathmocercus winifredae</i>		●		●	●						
Uluguru Bush Shrike							●				
<i>Malacoconotus alienus</i>							●				
Uluguru Violet-backed Sunbird											
<i>Anthreptes neglectus</i>	●			●	●		●	●		●	●
Amani Sunbird											
<i>Anthreptes pallidigaster</i>				●				●		●	
Plain-backed Sunbird											
<i>Anthreptes reichenowi</i>								●		●	
Banded Green Sunbird											
<i>Anthreptes rubritorques</i>				●	●		●	●			
Loveridge's Sunbird											
<i>Nectarinia loveridgei</i>							●				
Rufous-winged Sunbird											
<i>Nectarinia rufipennis</i>				●							
Tanzanian Mountain Weaver											
<i>Ploceus nicolli</i>				●	●			●			
Thick-billed Seed-eater											
<i>Serinus (burtoni) melanochrous</i>		●	●								
Eastern Arc Mountains											

continued

Notes to Table 1

¹ Given full species status by some authors. Treated here as very distinctive subspecies: Nduk Eagle Owl of Fraser's Eagle Owl *Bubo poensis* and Taita Thrush of Northern Olive Thrush *Turdus abyssinicus*.

² A particularly distinctive subspecies of Bar-throated Apalis *Apalis thoracica*.

Discussion

The discovery of a new and very distinctive perdicine with Indo-Malayan affinities in the Ndundulu and Nyumbanitu Mountains emphasizes the importance of these mountains. They also support the Rufous-winged Sunbird, another distinctive species, known otherwise only from Mwanihana Forest. Both species are without close relatives and apparently represent old radiations that have been isolated for a long time. West Kilombero is the only known area where the ranges of these two relict forest species overlap. The area also contains other distinctive species such as Swynnerton's Robin, Dappled Mountain-Robin, White-winged Apalis, Amani Sunbird and Banded Green Sunbird, all of which must be considered as representatives of rather old radiations as well. Newer radiations, with well-known close relatives, e.g. Iringa Akalat, Thick-billed Seed-eater, Tanzanian Mountain Weaver and Uluguru Violet-backed Sunbird are also present. These facts suggest that the West Kilombero forests have enjoyed continuously favourable conditions through long periods with violent changes in climate and vegetation zones and therefore must be considered ecologically very stable.

The discovery of the new distinct perdicine and of the Amani Sunbird underlines the importance of the Udzungwa Mountains within the Eastern Arc. The Udzungwa Mountains hold more than 60 per cent of the restricted range Eastern Arc forest birds (Table 1, species treated in Collar & Stuart 1985).

The discovery of the Amani Sunbird in the Udzungwas (this study) and of Swynnerton's Robin in the Usambaras (Watson & Perkin 1992) strengthens the evidence for the strong faunal connections between these two important Eastern Arc areas which also have Dappled Mountain Robin, Banded Green Sunbird, Uluguru Violet-backed Sunbird and Tanzanian Mountain Weaver in common, plus the superspecies formed by the Iringa and Usambara Akalats (*Sheppardia montana*). Both areas have endemics of their own. They are centres of endemism which have had continuous forest habitat and mutual connection with more widespread forest habitat in certain climatic periods.

The Nyumbanitu Mountains were not as thoroughly surveyed as the Ndundulus. However, we expect several of the restricted range species, so far only recorded in the Ndundulus, to occur in the Nyumbanitus as well, because of the similarity of habitats.

Conclusion

The plateau forests of the Udzungwa Mountains were formerly believed to be dry and species-poor compared to the escarpment forests, e.g. Mwanihana Forest (Collar & Stuart 1985, Jensen & Brøgger-Jensen 1992). This study in West Kilombero revealed a remarkably rich avifauna and the presence of a distinctive relict forest perdicine bird as well as of Rufous-winged Sunbird and several other restricted-range species. Mrs

Moreau's Warbler *Bathmocercus winifredae* is the only threatened restricted-range species within the Udzungwas (Collar & Stuart 1985, Jensen & Brøgger-Jensen 1992) which we did not find in West Kilombero. More surveys in other parts of the forest might, however, reveal its presence.

Because of the great habitat variation, with both middle altitude wet forest and high altitude drier forest types, the restricted range avifauna is complex with the occurrence of mainly dry forest species such as Iringa Akalat and Thick-billed Seed-eater as well as of such wet forest species as Rufous-winged Sunbird and Dappled Mountain Robin. Species recorded in West Kilombero but not so far in Mwanihana Forest on the eastern escarpment include the new distinctive perdicine species, Amani Sunbird, Iringa Akalat and Thick-billed Seed-eater (all treated in this paper), and also Pale-breasted Illadopsis, African Hill Babbler *Alcippe abyssinica*, Olive-flanked Robin Chat, Red-capped Forest Warbler *Orthotomus metopias* and Oriole Finch *Linurgus olivaceus*.

Thus several facts stress the high conservation value of the Ndundulu and Nyumbanitu Mountains, both of which lie outside the newly gazetted Udzungwa Mountains National Park.

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SHORT COMMUNICATIONS

The second breeding record of the Goliath Heron *Ardea goliath* in Somalia

The Goliath Heron *Ardea goliath* has been described as rather uncommon but widespread in Somalia with only one breeding record, from the extreme northwest (Ash & Miskell 1983).

An example of this species was seen on 19 August 1989 on the Shabeelle river some 3 km downstream from Aw Dheegle village (1°57'N, 44°50'E) perching in a nest together with one half-grown young bird. The solitary, flat, platform-like nest was constructed from dry branches; it was about 1 m in diameter and about 20 m above the water level in a large tree on the edge of the river. The well-feathered young bird was brownish-grey, about half the size of the parent, and apparently still nest-bound. Its age was estimated as five to six weeks.

Brown *et al.* (1982) state that *A. goliath* lays mainly during the rains and give laying dates for Somalia as September to December; they were evidently aware of Somalia breeding records unavailable to Ash & Miskell.

An attempt is made here to relate the present breeding record to precipitation in the area. In general, the north and south movement of the intertropical convergence zone, with its associated intertropical front and wind patterns, is the major event which shapes the climate of Somalia. Precipitation fluctuates from year to year and from area to area along the coastal land between the Shabeelle and the Jubba rivers. There are two rainy seasons—the *Gu* season is the longer one, lasting from April to June, while the *Deyr* season is the shorter and less reliable, from October to mid December.

Rainfall data for the first nine months of 1989 at stations nearest to the heron's nest are given in Table 1.

The data show that rainfall in central and southern Somalia occurs in pseudo-random showers of relatively small dimensions. On a daily basis there is thus a marked spatial variability, and rains may be intense over limited areas, which would explain the variation between the two locations in Table 1. The listed rainfall figures were recorded

Table 1. Rainfall (mm) at two sites in Somalia in 1989

	Afgooye ¹			Jenaale ²		
	1989	normal	% of normal	1989	normal	% of normal
Jan	0.0	2.7	0.0	0.0	1.0	0.0
Feb	0.0	1.4	0.0	0.0	0.1	0.0
Mar	22.6	7.6	297.4	0.0	5.7	0.0
Apr	57.2	87.8	65.1	78.2	109.9	71.2
May	154.1	92.9	165.9	51.1	82.3	62.1
Jun	77.9	57.6	135.2	95.9	78.1	122.8
Jul	9.4	53.8	17.5	21.9	61.3	35.7
Aug	8.7	22.9	38.0	17.6	48.4	36.4
Sep	34.3	11.9	288.2	22.2	18.3	121.3

¹ 38 km NE of Aw Dheegle² 24 km SW of Aw Dheegle

at the two meteorological stations nearest to the Goliath Heron observation point. They relate monthly precipitations from January to September 1989 to the normal pattern of the *Gu* season, which is the main, and more reliable, of the two rainy periods. These data seem to indicate that breeding in this case could have been triggered by the peak rains in May–June, especially since they were rather copious in 1989, thus supporting the assumption that laying would normally occur during the rainy season.

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Fruit-eating sunbirds

While visiting Kokota Island ($6^{\circ}17'S$, $39^{\circ}10'E$), an islet on the western side of Pemba, Tanzania, five of the endemic Pemba Sunbirds *Nectarinia pembae* were observed feeding in an unusual fashion. Early in the afternoon of 7 February 1993, four male and one female *N. pembae* were seen feeding actively in a fruiting *Flueggia virosa* shrub. At first it was assumed that the birds were searching for small insects amongst the foliage and fruit, however, closer observation with 10 x 40 binoculars at under 15 m range proved otherwise. The birds jabbed at the small creamy-white berries, extracted small segments which were then swallowed. Smaller berries were plucked and ingested whole. The sunbirds appeared to be unconcerned at our presence—ISCN had ap-

proached them to within 2 m—and they continued feeding on the fruits when we left the site after 15 min of observation.

The fruits of *Flueggia virosa* is eaten by children in Pemba and Zanzibar. In Pemba the shrub is called *mususi mizi*, while on Zanzibar it is known as *mkwamba*. We tasted the ripe berries and found them pulpy and sweet.

Chapin (1954) records instances of berries being found in the stomachs of four species of *Anthreptes* sunbirds and in three out of six stomachs of Olive Sunbirds *N. olivacea* in Zaïre. In southern Africa Maclean (1985) records the Collared Sunbird *Anthreptes collaris* eating small berries.

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A breeding record for the African Spoonbill *Platalea alba* in Tanzania

On 10 August 1990 at Lake Eyasi (35°20E, 3°26S) in northern Tanzania, I found a small colony of African Spoonbills *Platalea alba*. The water level in the lake was high for the time of year but was receding quite fast and the small island on which the birds were nesting was only some 100 m from the shore with the surrounding water 60 cm deep.

There were 26 active nests, 14 with young, some of which could walk; the remaining nests contained eggs. Some clutches were still being incubated but a few were probably abandoned. An abandoned egg measured 71.4 x 45.1 mm. A more rounded, less pointed egg found at the nesting site measured 91.6 x 58.6 mm and was probably of a Pink-backed Pelican *Pelecanus rufescens* from an earlier breeding attempt.

Britton (1980) does not list Lake Eyasi as a breeding locality for the African Spoonbill and Brown & Britton (1980) give laying dates as February to April for 250 records and May for one record within their Region C, which includes Lake Eyasi. However, within their Region D, less than 100 km to the west, breeding is "much more elastic" and includes July and August.

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**Verreaux's Eagle Owl *Bubo lacteus* persistently attacked by
Thick-billed Ravens *Corvus crassirostris***

On 16 September 1989 our attention was drawn to a group of four Thick-billed Ravens *Corvus crassirostris* at Redele, Illubabor Province, southwest Ethiopia. These ravens are normally a noisy species, but the present ones appeared to be unusually agitated in a nearby acacia tree.

As we approached, a Harrier Hawk *Polyboroides radiatus* flew off with two ravens in close pursuit and all disappeared from sight, but the ravens returned after about two minutes. Almost immediately afterwards, what appeared to be a Wahlberg's Eagle *Aquila wahlbergi* also flew away with another two ravens in pursuit. It landed in a nearby dead tree, and was thereafter ignored by the ravens. Although two possible candidates for the cause of the consternation had gone, the agitated calling continued unabated and was increased through the arrival of a pair of vociferous Cape Rooks *Corvus capensis*. It was now obvious that there was some other cause for the mobbing behaviour of the ravens. On closer approach we found a fully grown Verreaux's Eagle Owl *Bubo lacteus* perched high in the tree being closely attacked by the ravens. The Cape Rooks provided a rather more distant but very noisy support.

The owl was well placed within a tangle of dead twigs among which it was protected from the ravens' beaks which were only able to reach it one at a time through one opening among the branches. At this point one of the ravens, frustrated in its attempt to reach the owl, began to deliberately break off the twigs with its beak in order to increase the size of the opening. After a few minutes all four ravens adopted this activity and soon made an opening large enough for them all to enter and attack the owl from several directions. Despite their numbers, large size and powerful bills, the ravens were very wary of the owl, never facing it and always striking at it by jumping up or flying fast and pecking at it and aiming at its rear. After a few minutes of being forced to fight against four attackers simultaneously the owl took off, pursued by two ravens. It alighted in a nearby tree but was almost immediately forced to fly again into another where it remained until dark, continually mobbed by the ravens. It was not there the following morning and we did not see it again.

Of particular interest to us was the persistence and ferocity of the attacking ravens, and the fact that two other species of potential predators were also present, and apparently had been attracted to the scene. The late Leslie Brown (1972) has reported Verreaux's Eagle Owls preying on the young of Pied Crows *Corvus albus* and buzzards *Buteo* sp., so that probably all the corvids and raptors involved in the incident described here were reacting to the owl as a potential predator of their young.

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Notes on Moreau's Sunbird *Nectarinia moreau*

The Cambridge Tanzania Rainforest Survey 1990 visited Mamiwa Kisara Forest Reserve in the Ukaguru Mts ($6^{\circ}21'S$, $38^{\circ}47'E$) from 23 August to 14 September 1990. The team included two ornithologists who conducted understorey mist-netting at three sites, one at 1500 m (the lowest remaining forest) and two at 1800 m. In total 324 birds were caught (Evans & Anderson 1993).

One of the most numerous birds in the forest was Moreau's Sunbird, considered near-threatened by Collar & Andrew (1988). It is known only from the Ugurus, the Ngurus and the Uvidundas, above 1300 m (Britton 1980). It forms a superspecies with the Regal Sunbird *N. regia*, Eastern Double-collared Sunbird *N. mediocris* and Loveridge's Sunbird *N. loveridgei*. Moreau's was originally described as a sub-species of *N. mediocris* and, indeed, may be returned to this status in a current revision of the East African list (N. E. and E. M. Baker, verbally).

New observations

The species was seen and heard daily in the field around both netting sites, typically in the canopy or in bushes along roads through the forest. It was not observed in the extensive mature pine plantations adjoining the forest reserve, nor in non-forest areas (including scrub). It sometimes joined mixed-species flocks. The call/song is typical of sunbirds—a rapid, almost musical, cascade of high-pitched notes.

Thirty-seven were netted, including 20 adult males and 15 adult females. This is a capture rate of 27.6 per 10 000 net-metre hours, the highest for any species in the Ugurus. Biometrics are summarized in Table 1. Four birds were each recaptured once but none showed any significant movements, weight changes or moult progression. Advanced wing and tail moult was noted on one male and one female. Stuart & van der Willigen (1978) caught six in about 9000 net-metre hours.

Table 1. Biometrics of Moreau's Sunbirds (mean and range)

<i>n</i>	adult male 20	adult female 15	immature 2
Wing mm	56 (53–59)	51.5 (50–53)	52 (51, 53)
Tail mm	39.2 (29–43)	34.1 (32–36)	29 (28, 30)
Bill mm	23.7 (19.7–26.4)	22.1 (19.2–24.8)	20.3 (19.9, 21.9)
Tarsus mm	18.0 (17.6–20.0)	17.8 (16.9–19.0)*	17.7 (17.6, 17.8)
Weight g	8.3 (7.6–9.6)	8.1 (6.8–9.1)	7.1 (7.0, 7.2)

*excludes one apparently erroneous measurement of 13.8 mm on an otherwise normal bird.

The only other published measurements are from Mackworth-Praed & Grant (1957) who give winglength ranges of 55–57 and 50–54 mm for males and females respectively, agreeing closely with our larger data set.

Five females and none of the males had enlarged and vascularized brood patches indicating that they were incubating eggs. A sixth female was growing fresh feathers on

her brood patch and had begun moult, implying recent completion of breeding. Two recently fledged birds were caught on 26 August and 1 September.

Two occupied domed nests were found in low vegetation beside a dirt road through the forest (though one of these was 3 m up, suspended from bracken overhanging a cutting). A third was watched being constructed in a tall tree c. 10 m above the ground by a female on 4 September. She repeatedly visited a nearby insects' nest, of leaves bound with silk, in the branches of a bare tree, to gather silk.

Brown & Britton (1980) list 19 breeding records for *N. mediocris* in northern Tanzania, 14 of them from September to December, but none at all for the rest of Tanzania, nor for *N. moreaui*. Mackworth-Praed & Grant (1957) present breeding records for the two species together, listing July and October through to December for central Tanzania and June to August for Malawi. The high breeding activity we noted in August–September accords with these other records.

Conservation status

The species' abundance suggests that it is in no immediate danger in the Ukagurus, where around 10 000 ha of natural forest remain. However, it is forest-dependent, and the intensive human pressures on Mamiwa Kisara Forest Reserve, which include cutting trees for firewood and clearance for agriculture, may threaten it in the medium term. The status of "near-threatened" is still merited. The Wildlife Conservation Society of Tanzania has initiated a conservation project in the Ukagurus. The current status of forest birds in the Ngurus and Uvidundas is not known.

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[note the order, no comma, not '23rd']; **names of birds:** Cape Rook *Corvus capensis* [no comma, no parentheses, no author's name]; **list of references** at the end of a paper or short communication: authors' family names followed by a comma, then initials, each followed by a full point (= full stop, period); **names of journals:** to be given in full; **books:** after author(s), year of publication and title give the town followed by the publisher.

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